The RUBBER AGE

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LATE NEWS of the Industry

Firestone Tire & Rubber Company Shows Net Profit of $6,028,631 During Year

REPORTS of the Firestone Tire & Rubber Company and subsidiaries for the year ended October 31, 1931, show a net profit of $6,028,631 after interest, depreciation, federal taxes, inventory adjustments, Liberia development expenditures and other charges, equivalent after payment of preferred dividends to $1.25 a share on 2,115,268 shares of $10 par value common stock. This compares with net profit of $1,541,034, equal to $2.66 a share on 578,633 shares of 6 per cent preferred stock, in the preceding fiscal year. In the year ended October 31, 1929, the company earned $7,726,870, equal to $3.26 a share on 2,239,860 common shares then outstanding. Net profit in the year ended October 31, 1928, was $7,072,014 and in the year ended October 31, 1927, was $13,780,965.

After payment of common and preferred dividends, the company showed a surplus for the year of $520,206 as against a deficit last year of $4,570,189. In the year ended October 31,1929, there was a surplus of $3,189,475.

Net sales for the year were $113,797,282, which is only 5 per cent less than the previous year's total of $120,015,663 despite the drop of tire prices to the lowest levels in history. Dollar volume of sales also was only 21 per cent under the high record of 1929, and 9 per cent less than in 1928 and 11 per cent lower than in 1927.

The company's gross profit margin on sales increased to 10.9 per cent last year from 6.4 per cent in 1930, while the net profit margin advanced to 5.3 per cent from 1.3 per cent despite a 15 per cent increase in the allowance for depreciation. Harvey S. Firestone, president of the company, considers these reports "in view of the conditions and difficulties of the past year, the best statement from a sales and profit standpoint the Firestone organization has ever made."

Further balance sheet adjustments were necessitated by the decline in foreign exchange, affecting the values of the working capital held by the company's foreign subsidiaries. A total of $1,908,727 was charged to meet this depreciation on the basis of October 31 exchange rates, of which $99,366 was applied against earnings and $1,809,361 against surplus.

Other surplus charges included $3,004,850 against employes' stock surplus to adjust employes' stock contracts to a favorable basis, $786,863 to adjust as of October 31, 1930, various accounts not previously consolidated, and $629,245 as a net charge resulting from cancellation of employes' stock contracts and reduction of treasury common stock to par value. After all these charges, consolidated surplus stood at $36,380,958 compared with $41,984,248 on October 31, 1930, and book value of outstanding common stock was $27.19 a share against $29.48 a share at the end of 1930.

During the year, the company acquired 48,931 shares of its 6 per cent preferred stock at prices averaging about

Scanning the Headlines

Predictions for 1932 *by leaders of the industry are tinged with more restraint than those for* 1930 *and* 1931 . . . . FIRESTONE *nets six million, four times its income for previous year . . . . Crude rubber falls back a half-cent during the fortnight despite favorable statistics . . . .* GODFREY L. CABOT, INC., *celebrates half century of carbon black progress . . . . Industry's executives prepare for annual meeting and dinner of Rubber Manufacturers Association January* 11 . . . . GOODYEAR *reduces dividend, names new directors . . . . Rubber Products Symposium planned for March by* A. S. T. M. . . . . GENERAL *tire sales increase, but dollar value drops . . . . Factory output shows gain with start of the New Year . . . .* LEE *reports smaller loss than in previous year . . . . Organic chemists see Du Prene at Yale meeting . . . .* GOODRICH *promotes P. J. Kelly, appoints P. C. Handerson advertising manager . . . . Company securities decline, and cotton prices recede slightly.*

$40 a share below par value, thereby reducing outstanding preferred stock to 529,702 shares. The total discount of $1,960,164 resulting from these purchases was set up as a reserve against certain investments of subsidiary company having an indicated market value of about $2,500,000 against a balance sheet value of $6,224,196. Outstanding common stock also was reduced to 2,115,268 shares from 2,154,861 shares.

The company's working capital position shows only minor changes in comparison with a year ago. Cash totaled $11,776,774 on October 31 against $12,275,353 a year previous, and receivables also declined slightly to $15,599,083 from $16,621,050. Inventories, on the other hand, increased to $29,134,422 from $27,548,987. The gain in the latter account in the face of greatly lower raw material values, probably reflects in part the heavier holdings of raw materials which usually are accumulated on a falling market.

Working capital at the year-end amounted to $51,544,379 against $52,230,623, while the ratio of current assets to current liabilities was 10.4 to 1 compared with 13.4 to 1 at the end of 1930.

Consolidated income account for year ended October 31, 1931, compares as follows:

	1931	1930	1929
Net sales	$113,797,282	$120,015,663	$144,585,804
Costs and expenses	101,377,865	*112,364,530	128,761,132
Operating profit	$12,419,417	$7,651,133	$15,824,672
Other income	1,578,151	1,610,146	844,181
Total income	$13,997,568	$9,261,279	$16,668,853
Depreciation	5,665,062	4,914,656	4,639,792
Interest paid	1,215,562	1,431,893	2,084,729
Emp stk cancell	.....	.....	109,524
Liberia dev exp	300,592	885,398	1,074,218
Fed taxes, etc.	‡688,354	488,298	1,033,720
Adj of foreign subs	§99,367	.....	.....
Net profit	$6,028,631	$1,541,034	$7,726,870
6% pfd divs	3,371,904	2,935,147	388,506
7% pfd divs	.....	.....	1,168,658
Pfd div Firestone Foot.	.....	.....	31,951
Common dividends	2,136,521	3,176,076	2,948,280
Surplus	$520,206	†$4,570,189	$3,189,475
Consol P & L surp.	36,380,958	41,984,249	47,453,475

*Including writing down of inventories to the general basis of the lower of cost or market at October 31, 1930, after applying against same, reserve for contingencies of $500,000 previously provided. †Deficit. ‡Includes elimination of operating results of service stores applicable to minority interests. §Adjustment of net income of foreign subsidiaries due to fluctuations in exchange rates.

Society for Testing Materials Plans Rubber Products Symposium for March

THE third regional meeting of the American Society for Testing Materials will be held in Cleveland, O., on March 9. This meeting is under the auspices of the members who are located in Cleveland and environs and the arrangements are being made by the Cleveland District Committee of which H. A. Schwartz is chairman.

The Cleveland District Committee was organized last May for the purpose of bringing Society activities closer to the members in the Ohio district and to stimulate interest in the work of the Society in that region. This committee suggested that a regional meeting be held in 1932 at Cleveland and the Executive Committee approved this recommendation.

The policy of having the Spring Group Committee Meetings during the week in which the regional meeting is held will be continued. The standing committees have indicated that Cleveland will be a satisfactory place for the meetings and they have approved the week of March 7 as appropriate. All committee meetings and the regional meeting will be held at the Hotel Cleveland.

The technical feature of the meeting will be a Symposium on Rubber Products. An important objective of the program is the dissemination of increased knowledge concerning rubber and rubber products among those outside the rubber industry so as to aid engineers in applying rubber to their particular needs and to assist in the preparation of proper specifications. To accomplish this objective the papers are to be developed chiefly from the viewpoint of a consumer of rubber products and the average technical man rather than being directed primarily to the rubber technologists; they will be written broadly rather than with a purpose of developing specific technical details. In order to treat adequately of this subject, it has been definitely decided to have two sessions in which the papers will be given. The program is being arranged so that there will be time for ample discussion.

Committee D-11 on Rubber Products has cooperated with the District Committee to arrange the technical program.

The papers to be given in the morning session are being prepared with a purpose in view of building up a knowledge of rubber technology and manufacture which will serve as a background and a foundation for the consideration of the afternoon session. The morning session will give a picture of the general processes involved, the chief materials used in modifying the properties of rubber and the reasons for their use.

In the afternoon session consideration will be given to the various classes of service for which rubber products are used and the properties which make different kinds of rubber suitable for these uses. The extent to which properties of rubber can be modified both by fabrication methods and by the use of other materials in the rubber will be discussed. The papers in this session will, in general, involve the properties of rubber as an engineering material.

The standing committees of the Society will hold the annual spring group meetings of committees in conjunction with the regional meeting. The Hotel Cleveland has excellent meeting facilities and all committee meetings will be held there, extending over the dates Monday, March 7, through Friday, March 11. It is expected that in view of the increased use of rubber products and the importance that rubber is assuming as an engineering material that a large number of the committee members who are attending the group committee meetings will also participate in the regional meeting. The Cleveland District Committee has definite plans for making the stay of committee members a pleasant one. One of the features will be visits to many of the industrial plants in Cleveland and one or more trips will be arranged for the inspection of some of the rubber plants at Akron. This will enable the members and visitors who attend the regional meeting to actually see the production of rubber products.

General Tire & Rubber Company Sales Totaled $20,822,000 for Fiscal Year

SALES of the General Tire & Rubber Company during the fiscal year which closed November 30 amounted to $20,822,000 and, during the year, the company produced and sold more tire units than during any previous year in its history, William O'Neil, president, reported to company stockholders at the annual meeting of the company held December 31 at the general offices in Akron.

President O'Neil informed the stockholders that, because of the fact that Price, Waterhouse, & Company had not yet completed their annual audit of the company's books it

would be impossible to make public earnings figures at this time, but that they would be available in a few weeks.

"We have finished the year with a profit, although we cannot yet tell just how much," President O'Neil said. "During the year, we reduced our bank indebtedness to one-half of what it was. We also subscribed to the Akron Credit Corporation to protect Akron banks or we would have reduced our bank indebtedness considerably more than we did.

"The company has no bonded indebtedness, no debentures and no contingent liabilities and it is in a thoroughly liquid condition. We have maintained unbroken throughout the year the record of never having passed a dividend on either class of our stock since the company was organized.

While the company's sales total for the year, in dollars and cents, dropped 13½ per cent below the sales total of $24,072,000 in 1930, in spite of the fact that more tire units were made, this was due to the fact that tires were much cheaper in 1931 than in 1930. It has been variously estimated that dollar sales in the tire industry as a whole in 1931 were about 22 per cent below the 1930 figures.

President O'Neil's report showed that notes payable to banks had been reduced from $1,900,000 to $1,000,000 during the year and that accounts payable, not due, including accrued payroll, had been reduced during 1931 from $387,655.91 to $267,853.85. Cash on hand and in banks was reported to be $1,045,175.73 as compared with $1,329,656.78 at the end of the previous fiscal year.

Stockholders voted to increase the number of directors from seven to nine and elected J. R. Kraus, vice-chairman of the board of the Union Trust Company of Cleveland, as a member of the board. They also voted to re-elect the following directors: W. O'Neil, W. E. Fouse, C. J. Jahant, T. F. O'Neil and G. F. Burkhardt of Akron; and J. A. Diebold and R. W. Gallegher, of Cleveland.

Directors, holding their annual meeting after the stockholders' meeting, re-elected the following officers: W. O'Neil, president; C. J. Jahant and W. E. Fouse, vice presidents; Charles Herberich, treasurer; J. G. Stoller, secretary. Action was taken by the directors changing the date of the annual meeting of the company from the last Thursday in December to the third Tuesday in January, to become effective in 1933.

Lee Rubber & Tire Corporation Shows Loss of $625,100 During Fiscal Year

DURING the year ended October 31, 1931, the Lee Rubber & Tire Corporation and subsidiaries showed a net loss of $625,100 after interest, depreciation, loss on disposition of assets, miscellaneous charges and $434,810 inventory write-down. This compares with a net loss after similar charges of $799,111 in the previous year. In the year ended October 31, 1929, the company reported a net profit of $485,930.

The large inventory write-down was necessitated by the shrinkage in commodity values. This action brings the inventory down to the market price as of October 31, 1931, and in addition manufactured goods have been refigured to reflect the reduced wage scale now in operation.

Net sales last year totaled $6,768,460 as against $8,654,847 in the 1930 year and $10,586,785 in the 1929 period. The unit sales of tires increased 11 per cent over the previous year, but the mechanical rubber goods division (Republic Rubber Company) showed a marked decline, as this department reflects closely the railroad and general industrial trend and the hand-to-mouth buying policy which has prevailed. A contract to sell Lee tires in the service stations of a large oil company, made in the latter part of the year, is expected to add materially to the company's tire sales.

The year's loss reduced the company's surplus account from $1,116,272 to $486,660. Total assets are reported in the consolidated balance sheet at $11,290,267 as against $12,115,560 on October 31, 1930. Current assets exceed liabilities in a ratio of four to one.

"The manufacturing plants are free and clear," says John J. Watson, president, in his report to stockholders, "there being no mortgages or encumbrances on them, and they have been maintained in the best physical condition.

"Accounts and notes receivable have been carefully reviewed and extra reserves set up—it being thought advisable to guard against contingencies which may arise owing to the general credit and business conditions existing today throughout the world.

"Selling prices of tires still prevail at very low levels, but with the present material costs and adjustments that have been made in salaries and wages, it is estimated that the company can operate at a small margin of profit."

The consolidated income account for the year ended October 31, 1931, compares with the three previous years as follows:

	1931	1930	1929	1928
Net sales	$6,768,460	$8,654,847	$10,586,785	$11,032,914
Exp., depr., tax, etc.	7,389,452	8,857,172	10,060,774	10,845,805
Oper loss	$620,992	$202,325	*$526,011	*$187,109
Other inc	53,471	115,581	75,537	111,249
Loss	$567.521	$86,744	†$601,548	†$298,358
Interest	50,988	107,171	115,618	132,594
Loss on dispos of assets, etc	6,591	.....	.....	.....
Loss	$625,100	$193,915	*$485,930	*$165,764
Loss on adj. of invent.	.....	605,196	.....	.....
Net loss	$625,100	$799,111	*$485,930	*$165,764

*Profit. †Income.

Chicago Rubber Group to Meet January 15; Depew and Bridgwater to Present Papers

THE Chicago Rubber Group, of the Rubber Division, A. C. S., will hold their first meeting of 1932, on Friday night, January 15, in the ballroom of the Auditorium Hotel, Chicago. The program committee has arranged two very interesting subjects for the evening. Harlan A. Depew will present a paper on the subject of "Abrasion as a Measurement of Quality of a Rubber Compound." Mr. Depew, besides being well-known in rubber chemical circles, is chairman of Subcommittee XIV on Abrasion Tests for Rubber Products of the American Society for Testing Materials. He is making a special trip to Chicago to present this subject for the members of the group.

The other paper of the evening will be presented by E. R. Bridgwater, manager of rubber chemical sales, E. I. du Pont de Nemours and Company. He will speak on the new synthetic rubber, 'Du Prene,' recently announced by his company.

Ample accommodations have been provided, and those wishing to make reservations should communicate with the secretary of the group, B. W. Lewis, care of Wishnick-Tumpeer, Inc., 365 E. Illinois Street, Chicago, Ill.

Automotive Rubber Goods Exports Drop Sharply to $1,392,453 During November

SHIPMENTS of automobile tires, inner tubes, tire sundries and repair materials from the United States during the month of November had a total value of $1,392,453, a sharp decline from the October figure of $1,597,565. British India continued to be the chief market for

(Other news of the industry will be found on Pages 315-320)

truck and bus casings, but Java and Madura stood first as a destination for passenger car casings and for inner tubes. In the month 90,018 passenger car casings were exported with a value of $735,553 and 28,208 truck and bus casings worth $447,246.

Shipments of rubber belting in November amounted to 167,569 pounds, worth $68,609, and exports of rubber hose totaled 303,333 pounds with a value of $85,946, both figures representing sharp decreases from the totals reported for October. France was the principal market for rubber belting and Canada for rubber hose.

During November, the United States exported 885,282 pounds of reclaimed rubber, valued at $37,921, or 4.29 cents a pound as against an average value of October exports of 4.53 cents a pound, and 5,453,607 pounds of scrap and old rubber, worth $94,586. Canada remained our leading customer for reclaim, with the United Kingdom in second place and smaller amounts going to Mexico, France, Argentina, Australia, Spain, Cuba and Germany. Spain was again the first market for rubber scrap, with China in second place.

Rubber Manufacturers Assn. Will Meet And Dine at Waldorf-Astoria, Jan. 11

THE Rubber Manufacturers Association will hold its next annual meeting in the Assembly Rooms of the New Waldorf-Astoria, New York City, at 10:30 a. m., Monday, January 11, 1932.

Immediately after the regular business meeting and election of officers for the ensuing year by the board of directors, a luncheon will be served for all attending. An informal discussion on any subject of interest to the members will follow the luncheon.

The annual banquet of the Association will be held the same night in the Roof Ballroom of the same hotel, beginning at 7:00 p. m. Tickets are $10.00. It is expected that over 300 will be present. At the time of going to press the full program has not been made known but will include a speaker of national reputation, a humorist and a well known singer.

The dinner will be the thirty-second annual affair of the rubber manufacturers, who prior to the formation of an Association, have met yearly since 1900 over the banquet table.

Lalley Scores the Industry

SEVERE criticism of the manner in which the rubber industry is being managed in the United States today was made in a recent statement from William H. Lalley, president of Kelly-Springfield Tire Company. Mr. Lalley's statement follows:

"As one of the leading industries, there are certain pertinent facts regarding the rubber industry that the public should appreciate. Almost three billion dollars has been invested in the industry by several hundred thousand stockholders and in normal times over one million people in this country depend upon it directly or indirectly for their livelihood.

WILLIAM H. LALLEY

"Moreover, there are conservatively seventy-five thousand dealers engaged in selling the industry's products. In addition, there are millions of natives in the Far East dependent for their living and purchasing power on this industry, which purchasing power is indirectly reflected in this country.

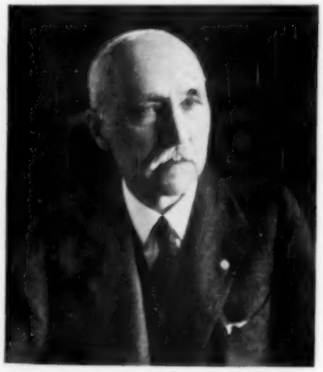
"The dependence of motor transportation, machinery, fabrication of waterproof cloth, boots, shoes and the hospital operating room on the products of the rubber industry indicates its vast importance to the welfare of the world.

"An industry of such vital importance owes a very definite responsibility to its employes, stockholders, dealers and consumers. It has fulfilled the latter, as indicated by the greatest rubber-buying value in history existent today, but it has been wilfully lacking in its responsibility to stockholders, dealers and employes. That some equable basis must be found to correct the situation is an obvious necessity which in 1932 we should solve.

"An industry rendering such vital service cannot continue to operate to the detriment of stockholders and people who invest their time and labor if it is to maintain the high standard of service to which the public has become accustomed and is entitled to."

Cabot's Golden Anniversary

THE well-known suppliers of carbon black, Godfrey L. Cabot, Inc., will celebrate their 50th anniversary this year. It was in November 1882, that a young man who is now one of the leaders in the carbon black industry and is still the active head of his organization, migrated from Boston to western Pennsylvania and joined with his brother in the production of natural gas and its by-product, —carbon black, then only known as a substitute for lampblack. It was not long before he had bought out his brother and firmly established the business which now bears his name.



GODFREY L. CABOT

By reason of the difficulties of production and the great financial risks there has been plenty of drama and romance in the story of the development of his project.

Within the past fifty years he has followed the expansion of the carbon black industry in natural gas fields westward and southward, until today his organization operates a group of factories producing carbon black from gas from over 400 wells and annually transports 70,000,000,000 cubic feet of gas through nearly 600 miles of pipe line, drawing from over 150,000 acres of owned and leased territory.

With a highly scientific education as a background, gained at Harvard, Massachusetts Institute of Technology and Zurich University, Godfrey L. Cabot has always been guided by science in the development of his industry and laboratories have been the controlling factors in his studies in carbon black. One cannot review the history of the production of carbon black without finding the frequent recurrence of his name in connection with invention and improvement in mechanical processes and devices.

It is interesting to note also that Godfrey L. Cabot, Inc., remains as always heretofore, in the complete control of the Cabot family.

Reviewing a Bad Year— 1931 *in* RETROSPECT

Volume of Unit Sales Far Below Expectations — Exports of All Classes of Rubber Goods Decline—Crude Rubber Stocks on Hand Total Year's Consumption Figure—Tire Replacement Sales Low

WITH the demise of the year 1931 it is but appropriate to write its obituary, irrespective of the personal feelings we might harbor regarding the deceased. The expressions of optimism which heralded in the year 1931, were only natural but proved not to be warranted in the light of events as the year proceeded. The rubber industry did not escape its share of painful and discouraging experiences.

All predictions, made at the early part of the year, fell short of realization and all signs of betterment in industry, which appeared from time to time during the year, proved to be mere mirages. The volume of unit sales in practically all rubber lines dropped far below expectations, while the total value of sales was correspondingly low. With automobile production at slightly under 2,400,000 cars as against over 3,350,000 in 1930, the original equipment tire sales naturally suffered. Nor did the tire replacement sales even approach the most conservative expectations. This phase of the tire business was the chief disappointing factor in a whole year of grief. Replacements were encouraged by two drastic price cuts to the point where tires were selling at the lowest price in their history and yet giving more mileage, but all efforts of manufacturers to stimulate sales were to no avail.

Coupled with the world-wide economic depression, exports in practically all lines of rubber goods dropped sharply.

Crude Rubber Situation

Turning to the crude rubber situation, in spite of the ridiculously low price of the raw commodity and reduced consumption, stocks at the sources of supply and chief trading centers reached record high figures during the year. At the end of the year the crude rubber on hand and afloat to the United States alone, reached the tremendous total of approximately 375,000 tons, a figure practically equal to the total domestic consumption during 1930 and well in excess of the consumption during 1931, which will be in the neighborhood of only 345,000 tons.

The price of crude rubber in New York started at the beginning of the year at 8⅝ cents and steadily declined, with but spasmodic and insignificant flurries, to a record low in December of 4¼ cents. The average price for the year was 6.17 cents as against 11.98 cents during 1930. The lack of buying demand during the year was also reflected in the drop in trading transactions on the New York Rubber Exchange. The market was continually disturbed during the entire year by the recurrent rumors of restriction schemes in the Far East, but all restriction proposals failed of adoption, although as the new year begins it would seem that the British and Dutch governments are closer together and that some action must be taken shortly to save the plantation industry.

With the exception of a very few, the most notable being Firestone, Seiberling and India, financial losses or severe declines for the year are reflected in the balance sheets of the individual rubber manufacturers throughout the country.

Also the spector of unemployment stalked through every rubber manufacturing plant, continuously throughout the year.

Yet the year was not without several significant happenings within the industry, which might have important beneficial bearing on the early recovery of the industry. New economies and retrenchments within the individual companies and the revamping, in many instances, of the financial structure of the several concerns, have been inaugurated and there is evidence of a far better stability for the new year in the prices of crude rubber, cotton and compounding materials.

Research and chemical developments have been continued to a point where many old problems have been solved and new processes mapped out, involving economies and more efficient production methods. New applications for rubber, particularly in the field of flooring materials, paving, novelties, and tank linings and mechanical goods, have reached developments of commercial importance. The use of liquid latex and its adaptation to various manufacturing methods was a leading feature of the year and liquid latex imports reached a new peak figure. A number of new and important chemical compounding materials also made their appearance.

But, on the whole, the picture is a dismal one.

Review of Events

Barely had 1931 started when the mail order houses slashed tire prices 15 per cent and the reduction had to be immediately followed by the tire manufacturers. Early in January, tire dealers throughout the country heard the discouraging news that the Standard Oil companies in the middle west and east would immediately inaugurate a plan for selling special brands of tires through their own filling and service stations. On January 3, equity receivers were appointed for Fisk and shortly thereafter the Murray Rubber Company receivership was made permanent. But there was a rift in the clouds when it was announced that the United States Rubber had bought an interest in Gillette, Goodyear had opened its Argentine plant with auspicious ceremonies and that Firestone's Argentine factory was well near completion and would begin functioning in May. During February the American Rubber Products, Inc., a sub-

sidiary of Intercontinental Rubber, opened a new Guayule plant at Salinas, Cal.

By the end of March, Ajax Rubber had foreclosed, McClaren was attempting reorganization, and losses were being generally reported for 1930 in the financial statements of most of the individual rubber companies. Goodyear and General both cut their dividends to $3 early in April. Stocks of rubber footwear in dealers' hands rose sharply, reflecting reduced sales. Tire dealers' stocks showed but a slight decline in the face of little or no replacement buying. Du Pont bought Roessler and Hasslacher. James D. Tew was elected president of the Rubber Manufacturers Association upon the death of Samuel Woolner.

May saw a sudden spurt in tire sales but it was short lived and only proved a discouragement to the industry and the trade. In the same month, Cleveland banks displaced Cyrus S. Eaton, who had been such a spectacular trader in rubber company shares, as head of Continental Shares, Inc., and all rumors of a consolidation of the larger tire companies were killed.

Exports Drop Sharply

In July, the Department of Commerce announced that the value of all rubber goods exports for the first six months of the year had dropped 33⅓ per cent. Essex Rubber went into receivership. The unemployment situation had begun to take on a serious aspect and early in September, in response to President Hoover's appeals, the industry began to lay joint plans to alleviate conditions, with the result that a five-day week at a reduced wage scale was generally accepted throughout the industry. In some of the plants, shifts were rotated by different groups of workers, so as to give employment to the maximum number. To help the general financial situation the larger rubber companies in Akron joined a credit pool, along with a consolidation of several of the local banks. The market price of crude rubber continued to fall. J. L. Julian was re-elected to head the New York Rubber Exchange.

Stocks of tires and tubes in manufacturers' hands had, by this time, fallen to the lowest level since 1925 but sharp competition in tire sales again set in and lower tire prices were expected. General Rubber, in October, bought Yale Tire and Rubber and the Navy commissioned the *U.S.S. Akron*.

By far the outstanding event of November, if not in fact of the entire year, in its possible developments, was the announcement by no less a recognized concern than the Du Pont Company, of the development of a commercially practical synthetic rubber, to which they have given the trade name Du Prene.

In December the expected tire price cut of from 5 to 15 per cent came. Firestone was reported to be buying Fisk but this was denied. Crude rubber touched 4.10 cents on the Exchange. The year ended with the surprise announcement from Firestone that their balance sheet shows over $6,000,000 profit. The announcement came as a sort of anti-climax to a year overbalanced with financial tragedies.

Thus passed the year in review. It had been a difficult year for any industry to carry on, but it can be said to its credit and by way of consolation, that the rubber manufacturing industry has come through with less fatalities and bruises than many of its contemporaries.

Kalite

A NEW form of calcium carbonate, processed with fatty acids, has been announced by the R. T. Vanderbilt Company, New York, as the result of an exclusive sales arrangement with the Pure Calcium Products Company. The material, called Kalite, is made under a special process whereby a product is obtained which, it is claimed by the manufacturers, is superior in some respects to the general commercial forms of calcium carbonate heretofore known.

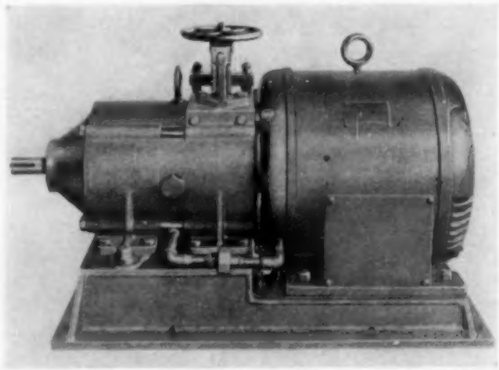
Kalite is an extremely fine white powder with a somewhat greasy feel. It is said to have strong clinging properties, adhering more noticeably to paper and other media than most other mineral powders. It will be produced in two grades; No. 1 containing 1 per cent stearic acid and No. 3 containing 3 per cent of stearic acid as calcium stearate. Kalit No. 1 is recommended by its manufacturers for use in compounds where the loading is high, while No. 3 is for compounds of low loading. The specific gravity of Kalite is taken as 2.60 for practical purposes, the gravity of No. 3 being a little less than this on account of the high content of calcium stearate.

Although Kalite is white in color in the powdered form, it has practically no coloring effect in rubber. Its compounding properties are unique in that, it is claimed, it is absorbed by rubber on a mixing mill much more easily than ordinary calcium carbonate; less heat is generated during mixing than when other pigments are used, and it does not retard the action of accelerators, but on the contrary, it seems to activate most accelerators, thereby reducing the time of cure.

Kalite is claimed to be suitable for use in practically all rubber compounds except high grade tread stocks where the highest degree of abrasion-resistance is required.

New Speed Reducer

THE American Engineering Company, Philadelphia, Pa., has recently developed an electro-hydraulic transmission, which they claim is so flexible that it will deliver any speed from zero up to the maximum of the unit. One end of the transmission is connected to an electric motor rotating at a constant speed. From the other end any intermediate speed can be regulated. The direction of rotation can be changed at any intermediate speed instantly and controls are available to make the transmission perform a series of operations automatically. The unit is compact and no gears, pulleys or belts are used in its construction. The electric motor is an integral part of the drive. Transmission and motor are all mounted on the same bedplate, no outside tanks or piping being required. An inbuilt air cooling system enables the unit to carry full rated load continuously.



Electro-Hydraulic Transmission Unit

At the present time 5 and 15 H.P. units are being manufactured. Other sizes, including 3 and 10 H.P. units, are contemplated.

Making SHEETS, STRIPS *and* THREAD *from* LATEX *on a Spreading Machine*

Ordinary Spreading Machine With Slight Modification is Used—Either Pure Gum Type or Multi-Colored Sheeting Can Be Produced—Little Initial Cost Necessary

By J. B. CROCKETT
Heveatex Corporation, Malden, Mass.

NOW that coating or proofing of fabric with latex utilizing the ordinary spreader or coating machine is receiving renewed attention, it is interesting to note a method by which the ordinary spreader with very little modification can be used to produce rubber sheeting, either of the pure gum type or multi-colored, which is grainless and which appears to possess many novel features and advantages over the ordinary calandered sheet. Strips and thread may also be made, by a very simple re-arrangement, which are tough and strong and compare favorably with those made by the highly specialized methods now employed.

The process was worked out and in semi-production operation several years ago and is now a thoroughly practical production operation which may be carried out with very little initial expense so far as equipment is concerned.

A standard spreading machine with a bed about 30 feet long is fitted with an endless belt having a smooth glossy surface. Imitation leather, such as a pyroxylin coated fabric, serves the purpose very well. An extra idler roll is fitted at the working end of the spreader to bring the belt up on a level with the doctor blade and to enable the latex or latex mix to be poured on at this point in any

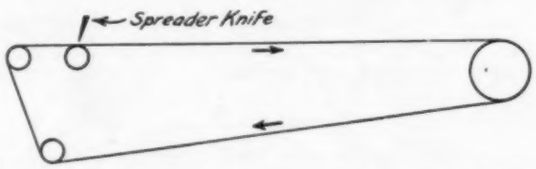
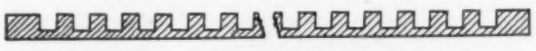


Diagram Showing Endless Belt Arrangement on Spreader

convenient manner. In practice, up to date, the latex has simply been dipped from a container and poured on the belt ahead of the spreader knife but, of course, a tank with or without an agitator may be mounted above and the latex deposited on the belt by gravity through a pipe or tap. The knife setting is carefully made to secure the gauge of sheet desired or which will conveniently dry on the machine being used and, of course, the gauge of the sheet made will depend on the concentration of the latex mix and the speed of the machine will depend on the drying facilities provided. On a machine having the ordinary bed of steam coils both above and below and running at 100 pounds steam pressure on the coils, the entire drying part of the machine being boxed in with a forced circulation, it was found that using a mix with about 50 per cent solids at a speed of eight yards per minute, the sheet could be dried and stripped off as a continuous operation, the gauge being capable of variation from about six to ten thousandths.

The latex is flowed or poured on the center of the belt and the flow is regulated so that the spreading knife evens it out over the entire surface of the belt up to the guides with the minimum possible overflow over the edges. Care must be taken, of course, that the belt is level for the first few feet of travel before the latex has set. This can be easily arranged by having it pass over and just lie upon a flat steam chest at this point or on a flat sheet of metal which rests on the spreader coils and is leveled up. Under the proper conditions the sheet is, of course, completely set



Cross Section of Belt for Making Strip or Thread

before passing over the driven back roll, the travel on the under side completing the drying.

To secure a reasonably rapid production and setting, the stability of the latex must be low and it is generally necessary to remove some of the ammonia present in ordinary commercial latex or to add formaldehyde or other chemicals to the mix which will keep the latex in a stable condition before it passes under the spreader knife but will cause it to set or assist in quick setting as soon as the temperature is raised. Generally, also, fairly high concentrations of rubber are desirable. The mix must be mobile and flow freely to avoid pin holes but the higher the concentration the quicker the setting and the less moisture to be removed. Concentrations of from 50 to 60 per cent have given the best results.

Substantially transparent or translucent pure gum sheets are obtained by a mix of 60 per cent latex, 1½ per cent dispersed colloidal sulphur and ½ to ¾ per cent dispersed colloidal zinc oxide together with about ½ of 1 per cent of an accelerator such as piperidine pentamethylene dithiocarbamate. With this mix no subsequent heating or vulcanization of the sheet is required. Any other accelerator, of course, may be used and the sheet subsequently vulcanized in the usual manner.

Another and interesting modification is to use an endless belt of pyroxylin coated fabric which has been embossed or stamped with any pattern. This may produce a plain sheet

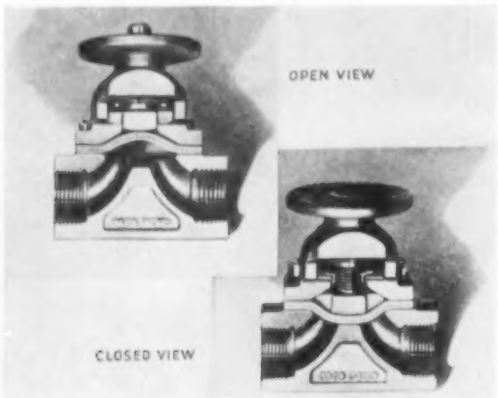
with the pattern re-produced on one surface of the sheet or it may be utilized to make a non-continuous three color sheet of very novel design. For the first coat a mix which has been colored blue, for instance, is used and only the depressions filled, the spreading knife being set so as to scrape clean the higher surfaces. The next coat, such as red, is a continuous one and finally a white coat is put on producing a sheet which is white on one side, and blue and red, following the design on the belt on the other. For sheets of this type the mix is usually compounded, not only with the desired colors, but also with the addition of clay, lithopone, and similar compounding ingredients.

The production of rubber strip or thread by calendering and coating has always been a fairly highly specialized operation. However, by following the general procedure outlined and using a belt having recesses or grooves along its length in the shape desired, either strip or thread may be readily made with this comparatively simple equipment. A concentrated mix including vulcanizing agents and antioxident, if desired, is flowed over the belt and the knife set so as to scrape the top and to completely fill the parallel recesses or grooves. The speed, of course, must be regulated, depending on the size and shape of the grooves but, for ordinary gauges, complete drying may be secured at reasonable speeds so that the threads can be stripped off continuously.

The products are tough and grainless and practically any physical properties desired may be obtained.

Valve With Flexible Diaphragm

THE Hills-McCanna Company, 2349 Nelson Street, Chicago, have acquired manufacturing and sales rights on a valve that was designed and perfected by P. K. Saunders, a mining engineer in South Africa. The valve was originally intended to eliminate leaks in water and air lines that caused a large unnecessary expense each



Showing Operation of the Diaphragm

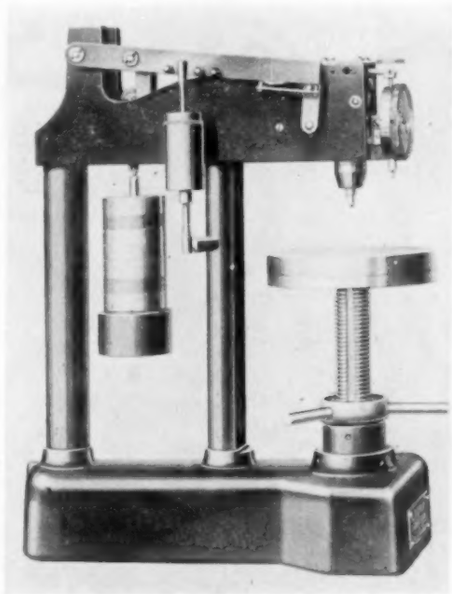
year. Ordinary valves with metal to metal seats were not satisfactory, due to scale and other foreign substances settling on the seats, preventing a tight closure.

The valve now perfected has no metal to metal seats, no stem packing or stuffing boxes. The materials handled never reach the valve bonnet. A flexible diaphragm protects all the working parts from the substances handled. Several rubber companies are cooperating with the company in perfecting rubber diaphragms for special services.

In the closed position the diaphragm is compressed between the compressor follower and the seat. An even distribution of pressure on the diaphragm is secured through proper design and machining of the seat and compressor.

Rockwell Hardness Tester

A HARDNESS tester by which depth readings under varying loads are entirely avoided, is being offered to the industry by the Wilson-Maeulen Company, 383 Concord Avenue, New York City. The Rockwell Direct-Reading Hardness Tester, as the instrument is called, is not the usual form of press with depth measuring attachments but is a precision measuring machine with a press which registers a hardness number on the face of a recording dial, based on the additional depth to which a



Rockwell Hardness Tester

test point or ball is driven by a heavy load beyond the depth to which the same penetrator has been driven by a definite light load. Without moving the piece to be tested, the minor load is applied and quickly thereafter the major load is applied and the hardness number is automatically indicated on the dial. From 7 to 10 seconds is consumed for the entire operation.

While the Rockwell tester is primarily used in testing ferrous and non-ferrous metals, it can also be used in the rubber industry in testing dies and hard rubber.

Various types of penetrators can be used in the instrument but the more common are either a hardened steel ball, 1/16" diameter, mounted on a chuck, or a conical brale penetrator, which is a Brazilian diamond, ground and polished to a cone of 120 degree angle.

"Rubber-Var" for Rubber Floors

IT has been found that the solvents used in some floor waxes and other treatments are sometimes highly injurious to rubber floorings, especially those of the soft composition type. The Continental Car-Na-Var Corporation, Brazil, Ind., have sought a solution of this difficulty by introducing a new flooring treatment, under the trade name "Rubber-Var." As a base for this new material, they have used their other floor treating product Car-Na-Var, which combines varnish gums and hard waxes, and have liquified it with a solvent which is claimed to be harmless to rubber or soft composition floors.

Rubber-Var is applied with a mop, drying almost as fast as it is applied, and then is polished by buffing.

Its manufacturers claim that Rubber-Var has received the endorsement of several of the leading manufacturers of rubber flooring.

JAPAN'S *Rubber Footwear Industry*

Unprecedented Growth Over Last Few Years in Foreign Trade Places Her as Leading Export Nation

IN the short space of a few years Japan has risen to the position of being the leading export nation in rubber footwear, according to the latest reports of the Department of Commerce. Conditions native to Japan have made it possible to produce such footwear at a price much below that of any other country and Japanese competitive methods have made themselves felt severely in almost all of the importing markets.

The comparative simplicity with which rubber footwear may be manufactured lends itself to extensive production in countries such as Japan. Evidence of this fact may be found in the large household industry, turning out some 5,000,000 pairs of tennis shoes annually. Whole families are engaged in this work—several thousand in all—either on a full-time or a part-time piecework basis.

Undoubtedly the most important factor in the rapid growth of the Japanese industry is the adequate supply of cheap skilled labor, though nearness to the world's supply of essential raw materials and the existence of a prosperous local cotton industry must not be overlooked. No definite information is available regarding wages, but it is reported that the nominal rates average from $0.75 to $1.25 per 10-hour day—much below that prevailing in this and other manufacturing countries.

Rubber footwear manufacturing, the most important branch of the Japanese rubber industry, is centered in a considerable number of modern, well-equipped plants. Several of these are large factories with many years' experience in the manufacturing of rubber goods. The largest, that of the Nihon Tabi K. K. (the Japan Rubber Footwear Manufacturing Co., Ltd.), is capitalized at 6,500,000 yen and employs more than 6,500 operatives. This company is reliably reported to have a daily productive capacity of 60,000 pairs, and several other factories report a daily productivity of 10,000 to 25,000 pairs. These companies have greatly increased their output in the past three years, particularly in canvas rubber-soled shoes, and have considerably improved its quality and variety.

Production Figures

Official production statistics of the Japanese industry are somewhat misleading, since no adequate record is kept of output by the smaller producers and the household industry. Figures for recent years, as reported by the Japanese Department of Commerce and Industry, reveal a growth in production of rubber shoes from 15,080,003 pairs in 1926, valued at 15,979,439 yen, to 37,913,269 pairs in 1929, valued at 28,797,350 yen; in production of "sport" shoes, from 1,760,490 pairs valued at 1,178,579 yen to 10,305,647 pairs valued at 7,341,573 yen. Production of "tabi" increased from 110,908,129 pairs in 1926 to 133,171,170 pairs in 1928, then abruptly dropped in 1929 to 37,936,677 pairs, valued at 24,507,188 yen (value for other years not given).

In the foregoing data "rubber shoes" includes rubber boots, overshoes, Chinese and Korean slippers if made entirely of rubber, other footwear made solely of rubber, Japanese zorii (straw sandals) with rubber soles, children's and infants' rubber slippers, rubber bath slippers, etc. "Sport" shoes consist primarily of "foreign style" canvas rubber-soled footwear, such as tennis and basketball shoes, sandals, pumps, etc., and include also Korean, Chinese, Indian, and other oriental footwear made of cloth or canvas and having rubber soles. "Tabi" consist exclusively of the variety of Japanese cloth sock, with divided toe and rubber sole, which is worn extensively by laborers.

The unprecedented growth of Japanese foreign trade in rubber footwear did not for a time materially affect exporters of other nationalities, since it consisted primarily of cheap all-rubber footwear and special types of oriental footwear for export to Far East markets.

Following this development, however, came an amazing increase in the production and export of what may be termed "western style" canvas rubber-soled shoes, which has directly affected the exports of leaders in this trade, such as the United States, Canada, and the United Kingdom.

Gains Control of India Market

The greatest increases in exports of Japanese rubber footwear have been registered in British India, where the Japanese have gained complete control at the expense of such former leaders as the United Kingdom, Canada, and the United States. In 1930 Japan supplied more than 85 per cent of the total Indian imports for the year. The Netherland East Indies, Siam, and Hong Kong also have been the scenes of large Japanese increases in the Far East, and the United States exporters have been directly affected by the enormous growth in these exports to the Philippines and to Hawaii. Likewise, major market gains, particularly for canvas rubber-soled footwear, have been made during the past year or so in South Africa and East Africa.

During 1931, although statistics by country of destination are not available, the figures for eight months show exports under the classification "Rubber boots and shoes" to be proceeding at 15 per cent below those for 1930; that is, 10,436,000 pairs, as against 12,365,000 pairs in the first eight months of 1930. Canvas rubber-soled exports, on the other hand, are continuing the large gains of the past three years and at the end of August were running 43 per cent ahead of the same period of 1930; that is, 10,648,000 pairs for the first eight months of 1931.

Japanese Tire Exports

JAPANESE official trade returns show but one general classification for tires, "Gum Tires," the unit of quantity being 100 kin which is equivalent to 132 pounds avoirdupois. By comparison with other official trade returns, the Department of Commerce has found that about three automobile casings are exported for every 100 kin. Using this basis of conversion Japanese tire exports during the first eight months of 1931 amounted to 90,933, compared with 94,368 in the same period of 1930. China continued to be the leading market with the Dutch East Indies second.

LITCHFIELD *Discusses 1932 Possibilities*

In the Following Statement by the President of Goodyear the Tire Output for 1932 is Estimated at 48 Million—Increased Tire Replacements Expected

THE manufacture of rubber products is considered one of the major industries. As its volume depends on the needs and purchasing power of the masses, it is affected considerably by fluctuations in general business activity.

The tire industry has three main markets, namely, domestic renewal market, original equipment market and the export market. Due to the severity and world-wide scope of depression in business, all three of these markets have suffered.

The year 1931 was one of declining business, with the lowest point of the depression at the close of the year. The rubber industry as a whole has had a similar experience. There is reason for optimism, however, in the fact that gasoline consumption has been increasing during this depression. This shows that in spite of many cars being laid up, in total automobiles are running as much or more than ever.

We should not forget that the use of most items of necessity, such as automobiles, tires, shoes and wearing apparel, has been going on the last two years at about normal rate. The purchasing, however, of these items has not held up anywhere near to normal, due to unemployment and decreased purchasing power.

This means that there is a vacuum being created, which is growing every month, and that ultimately these requirements will be fulfilled, although probably not to the extent we enjoyed during the inflation of 1928 and 1929. The shoe and textile industries in New England showed some signs of this condition during the fall months.

Cars in Use Grow Older

Our commercial research department recently made an interesting tabulation which shows that of all the millions of cars that will be operating in 1932, about two-thirds will be four years old or older. This has added significance in comparison to five years ago, when only 40 per cent of the cars operating were four years old or older. This increase in the proportion of cars in the four years or older classification has been due largely to the comparatively small number of new cars that have been added and to the tendency of automobile owners to make their old cars run one year longer, if possible.

Domestic renewal tire sales were approximately 37,500,000 in 1931 as compared to 38,000,000 in 1930. As compared to most industries, this was a remarkable showing. Tires are being made better and better every year, with the selling prices lower and lower. There are few items of manufacture that the average person consumes today which have dropped so much in cost in relation to value received as have automobile and truck tires during the past ten years.

The average passenger car consumes about 1.5 tires per year, compared to two or three times this number ten years ago. In addition to increased quality, this gradual reduction in the average tire consumption per car has been brought about by the use of larger tire cross-sections on original equipment. A good example of this is the Ford car, which some years ago used a 30x3 clincher high pressure tire on the front and a 30x3½ tire on the rear.

When balloon tires were introduced about seven years ago, a 29 by 4.40 tire was used. This was later increased to a 4.50 cross-section, then to 4.75, and the new 1932 model will probably use an even larger cross-section. It does not take much imagination to see why the present tire is giving more mileage than the old 3½" high pressure.

Probable 1932 Demand

With better tires and larger cross-sections, therefore, we do not expect that there will be any substantial increase in the demand for renewal tires in 1932.

In the original equipment field there has been a decrease in tire demand in direct ratio to automobile production. Production of motor vehicles in the United States in 1931 was approximately 2,400,000, as against 3,500,000 in 1930 and 5,300,000 in 1929.

With 1932 business activity starting off at the lowest point in this depression, we do not feel that it will average out any better than 1931, even though it may be on the upgrade during part of the year. The demand for automobiles has depended largely on employment, purchasing power and credit facilities.

Export shipments of rubber factories in the United States have declined in the past year or two, due to poor business and financial conditions abroad, to increased duties and taxes imposed by foreign countries and to establishment of factories in some countries, such as England, Australia and Argentina.

48 Million Estimate for '32

Total sales of pneumatic tires by factories in this country for all markets were approximately 49,500,000 in 1931, as compared to 54,009,000 in 1930, and 70,000,000 in 1929 and 1928. We estimate 48,000,000 for 1932.

The rubber industry has made more considerable progress in recent years in co-ordinating sales, production, and inventories, resulting in a more even flow of production throughout the year, and steadier employment for its thousands of workers. In the present depression this company has done everything possible to keep its employes on the pay roll by adopting the shorter working week, dividing the working force into four six-hour shifts instead of three eight-hour shifts, and rotating the working force in various departments.

Over the past ten years the efficiency of tire production as been increased tremendously. Where the average output formerly was one tire per man per day it is now about four tires per man per day.

The trend of tire prices over the years has fluctuated generally with fluctuations in the price of crude rubber, although these selling prices do not swing from one extreme to the other as is the case of crude rubber.

Crude Rubber Fluctuations

This basic raw material, for example, fluctuated from over $1 a pound in 1925 to 4½ cents per pound at the present time. There is probably no other basic raw material in the world that has had such wide extremes in price.

There are two main reasons for this: first, the fact that it takes seven years for a tree to begin bearing latex from the time the tree is planted, making it impossible to restrict the output from year to year, as in the case of cotton or wheat; second, because of artificial restriction laws that have been used in the past because of inability to restrict production in years of decreased consumption.

Toxic Substances *in the* Rubber Industry

PART XXIV

By **P. A. DAVIS, A.B., M.A., M.D.**

Assistant Medical Director, Goodyear Tire & Rubber Company

Methylene Diphenyl Diamine

METHYLENE DIPHENYL DIAMINE is a yellowish white compound when pure, darker when impure and is a mealy adhesive compound containing considerable hydroscopic water. It is sometimes called Methylene Dianilide. The action of formaldehyde on aniline may cause two distinct compounds to form. If one molecule of aniline enters into combination, Methyl Aniline results and if two molecules combine, Methylene Diphenyl Diamine results.

The melting point of Methylene Diphenyl Diamine is 65° and the boiling point is 165°. This compound is slightly soluble in boiling water and precipitates out on cooling. It melts very readily and if heated to a high temperature will ignite and burn with a white carbon flame. It is soluble in hot ethyl alcohol, but only slightly soluble in hot benzine. In the commercial product there is some free aniline and formaldehyde. It changes color, on exposure, to a dark brown and if handled stains the skin a dirty yellow. This compound is added to the rubber mixture on the mixing mills and produces irritating vapors when hot, producing a conjunctivitis, coryza and bronchitis.

Mixing mills with hot rolls should be provided and supplied with suction ventilation. This compound should not be handled with bare hands as some absorption takes place and a yellow discoloration results which is not easy to remove.

Exposure to the fumes causes the following symptoms:

1. Conjunctivitis
2. Coryza
3. Sore Throat
4. Bronchitis
5. Irritative pulmonary congestion.

Systemic absorption causes the following symptoms:

1. Nausea
2. Tachycardia
3. Irritative nephritis
4. Secondary anemia
5. Cyanosis
6. Mental confusion
7. Dizziness
8. Throbbing headaches
9. Loss of equalibrium with incoordinated leg movements
10. General weakness and necessity to quit work.

Experiments as to the production of a dermatitis were performed. Pure methylene diphenyl diamine purified from ethyl alcohol was used on guinea pigs. Local applications were made at daily intervals. After the third application a vesicular dermatitis developed and through absorption the pigs became sick.

Examination of men who have been working with this compound for some time shows that it can be used safely if it is handled carefully. Two cases in which the compound was handled by the unprotected hands resulted in marked discoloration of the palmar surfaces of the hands and an irritative dematitis on the wrists but as a rule, with careful handling one should not experience any trouble.

Preventive Measures

1. Mixing mills or any other machine that produces heat which comes in contact with the compound should be equipped with ventilating hoods with a suction draft.
2. The material should be handled with gloved hands or by mechanical means.
3. The compound should be kept in closed bins or containers and kept cool.
4. There is a slight fire hazard when the material is melted with an open fire so this should be guarded against.
5. Workmen shouldn't inhale the fumes or fine dust particles as this is conducive to a pharyngitis and bronchitis.
6. Periodic examination of workers, for dermatitis, pharyngitis, conjunctivitis, bronchitis and for blood examination.

Corrective Measures

1. Remove from contact with the compound, anyone who is presenting any of the mild symptoms.
2. Instruct the workers and the supervision.
3. Correct the ventilation and furnish protective appliances as gloves, goggles, respirators and cover-alls.
4. In case of an emergency where the compound gets into the eyes, wash with clean water, followed by dilute lime-water. Follow by ointments of argyrol and then Holocain and Ephedrine. For coryza, nasal douche and oil sprays; for pharyngitis, argyrol sprays and Dobell's gargle. In bronchitis one should use inhalants such as Tr Benzoin Comp, Menthol and oil preparations as well as ammonium chloride in dram doses by mouth. Removal from exposure to any irritating vapors and provide work in the open air.
5. The dermatitis responds very readily to removal from contact and the use of calamine lotion. One should not use soap and water on a dermatitis caused by methylene diphenyl diamine as it aggravates it.

If the blood examination shows a beginning toxic anemia and the hemaglobin is below 75 per cent or the red cells become irregular, or the percentage of mono-nuclear whites increase then remove from contact and treat the anemic condition and do not replace the individual on any kind of work where there is a possibility of absorption of any toxic substances. Urine examinations show an increased amido output if any absorption is taking place.

Conclusions

Methylene diphenyl diamine as ordinarily used with precautions should not cause any trouble. It does cause certain irritative conditions to develop if it is heated or the fine dust particles are inhaled. In a small percentage of direct contact cases a mild vesicular dermatitis will develop.

Periodic examinations and instructions will prevent any trouble.

The higher the purity of the compound the less chance there is for any symptoms of aniline poisoning or formaldehyde irritation developing.

Material should not be allowed to remain on exposed surfaces, and workers who have occasion to go into the storage bins should be sure that the compound does not get into their shoes. If it does they should be removed at once and a different pair worn till the others are thoroughly cleansed.

If all the safety precautions are adhered to methylene diphenyl diamine can be used without becoming a hazard.

EDITORIAL COMMENT

Restriction and the Gold Standard

THERE is growing evidence that the Dutch Government will sooner or later be forced into some co-operative rubber restriction plan with the British however distasteful such a policy might be to the Netherlands. Their persistent refusal to join Great Britain in any of the proposals set forth in the past, has, of course, been but a consistent persual of their colonial policy in the Dutch East Indies, of encouraging the native planters to cultivate their own holdings, in order that they might be self sustaining. In principle, the policy was a noble one in colonial administration and it would be difficult to find a just and logical excuse for suddenly restraining these natives in the harvesting of their labors.

But an entirely new angle has been injected into the situation. Holland has recently announced its intention to retain the gold standard. But as there is a substantial premium on the exchange value of guilders in comparison to sterling, the average rubber production costs in British Malaya are necessarily lower than those in the Dutch East Indies. With the low prices prevailing for native rubber, this differential will be particularly felt by the natives. This condition cannot fail to have a strong influence on the policy of the Dutch Government as regards any further suggestion of cooperative restriction.

Before the gold standard was dropped by Great Britain it was believed that the Dutch planters in the Netherlands East Indies had a distinct advantage over the growers of British Malaya in the matter of production costs. Since then it has been the reverse. With the currency in British Malaya based on a fixed ratio to sterling, the depreciation of the pound has acted as a reduction in Malayan wages and general overhead expenses. As the case actually works out, the gold price of rubber, having declined, the Dutch exporter is receiving less than before, while the Malayan exporter is receiving more,—each in terms of his own currency.

It would seem, therefore, that this currency question will be the means to bring about, unwittingly, some form of Anglo-Dutch cooperation in rubber fields. It has been understood for months that the British Government would welcome any overtures put forward by the Dutch, but feel that it is the turn of the Netherlands Government to take the next step.

1932 Prospects

UNDER the depression of the times, one is apt to have little faith in prognostications. Optimistic predictions have proved so distressingly wrong over the last two years that we are prone to read forecasts with indifference. Nevertheless there are some hopeful signs for the rubber industry on the horizon of this new year, 1932.

It is not hard to imagine, or even assure ourselves, that the consumption of crude rubber will increase during the year. The long period of financial depression has caused the users of tires as well as other rubber commodities to hold out from purchasing until the last minute. Tire replacement sales did not materialize last year and must be made before long. The consumption of gasoline during the last year, proves the point conclusively that tires have been run more miles than ever before.

Tire inventories are less than half of what they were in 1929 and are at the lowest point for many years. Replacements stand out as the greatest hope for the rubber industry in 1932.

Any moderate improvement in general conditions would bring about an increase in the sale of rubber goods. With any slight improvement in industrial activities it is fair to presume that mechanical rubber goods sales would increase.

More people need more merchandise of all kinds this year than a year ago because they have been doing without them during the depressed times. Rubber has been introduced into many new articles which only await better times to be produced in large volumes. From the standpoint of inventories of finished goods in the hands of manufacturers, the rubber industry is in a better position for the upturn than many other major industries.

The outlook, therefore, is not so dark as we might be led to suppose. With the financial structure of the industry in fairly good shape and with economies and retrenchments already in effect, one can hope with some assurance that 1932 will show some definite betterment over its predecessor.

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The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

NEW COMPANY FORMED TO TAKE OVER M'CLAREN

Organization of the McClaren Rubber Company, a new corporation to acquire the assets of the McClaren Rubber Company of Delaware, operator of the tire manufacturing plant at Charlotte, N. C., has been announced. Legal details are being completed in connection with the reorganization.

It is stated that the McClaren company is now in the strongest financial position in its history and that increased production will be started early this year. Large orders have been placed for cord fabric along with heavy commitments for rubber. Incorporators of the new corporation are I. Eisbrouch, P. J. Mayle and C. G. Milse, all of Charlotte, and executives of the present company.

Goodyear Reducing Accidents

The Goodyear Tire & Rubber Company is expected to attain its goal of a 25 per cent reduction in accidents at its Akron factories. August showed a 33 per cent reduction, September a 41 per cent reduction, and October a 37 per cent reduction. The divisional safety contest at Goodyear has resulted in a close race between three departments, with the William Stephens Trophy as the prize.

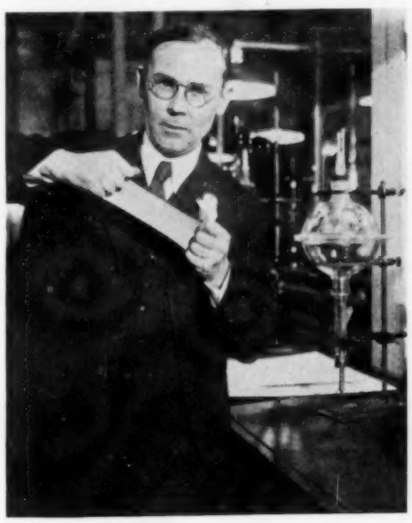
General Merchandising Firm

Organization of a merchandising subsidiary company by the General Tire & Rubber Company was announced December 28. It is to be called the J & G Merchandising Corporation, and articles of incorporation have already been granted by the state of Ohio, authorizing $50,000 in capital stock. H. R. Jenkins, Frank W. Knowlton and C. M. Skeen, all members of the legal staff of the General Tire & Rubber Company, are the incorporators.

Record Flexible Coupling Order

The Ajax Flexible Coupling Company, Westfield, N. J., recently received an order for over 800 flexible couplings to be used on the conveyor drives in the new Chicago Post Office. This is believed to be the largest order ever placed for flexible couplings for a single conveyor system. Couplings with interchangeable identical flanges, using rubber bushings, graphited bronze bearings, alloy steel drive studs and requiring no lubrication will be furnished for the order.

Du Prene Exhibited at Yale



W. H. Carothers, of E. I. du Pont de Nemours & Company, with a sample of Du Prene which he exhibited at the Fourth Organic Chemistry Symposium at the Sterling Chemistry Laboratory, Yale University, New Haven, Conn., on December 28. It was shown in connection with the paper he presented on the subject of "Some Reactions of Vinylacetylene and the Synthetic Rubber Problem."

Turner Halsey Moves

The Turner Halsey Company, cotton fabrics dealer, has moved its New York City office to the Merchants' Square Building, 40 Worth Street. Its New York headquarters were formerly located at 76 Leonard Street.

R. C. A. RUBBER COMPANY IS ORGANIZED AT AKRON

The R. C. A. Rubber Company was incorporated December 21 as an Ohio corporation and will begin operations early this year, manufacturing rubber sundries. Between 25 and 50 workers will be employed, it is reported, as soon as manufacturing space in Akron can be found and equipped.

Control of the concern will be held by the R. C. A. Development Company, also newly incorporated. Each corporation has initial capital based on 250 shares of no par value common stock. The incorporators are Enice Barnes, Katherine Woodward and Paul Taylor.

GOODYEAR TIRE & RUBBER REDUCES ITS DIVIDENDS

The dividend rate of the Goodyear Tire & Rubber Company on its common stock was reduced January 4 from 75 cents to 25 cents a quarter, or from $3 to $1 a year, by directors of the company at a meeting in Cleveland. Last spring the rate was cut from $1.25 a quarter to the 75 cents figure, this being a reduction from a previous $5 rate to $3 a year.

The dividend declared by the directors at the Cleveland meeting will be paid February 1 to stockholders of record on January 15.

Perfection Rubber Incorporates

The Perfection Rubber Company, in business at Akron, O., for 30 years, received authorization for new incorporation papers December 5. The incorporators are William B. Augustine, Mary J. Augustine, Ralph Turnbaugh, Mabel E. Turnbaugh and Donald Gottwald, and the capital is set at $100,000. The company produces miscellaneous molded rubber articles.

Flintkote Moves to New York

The Flintkote Company, manufacturers of asphalt roofings and allied products, is moving the entire personnel of its Boston headquarters to New York City, taking one and one-half floors in the Pershing Square Building, 100 East 42nd street. The company has recently been doing extensive research work with rubber dispersions.

Seeks Mechanical Goods Plant

A subscriber to THE RUBBER AGE wishes to purchase a mechanical rubber factory, fully equipped, within 50 or 100 miles of New York City. Communications from any readers who have or know of such a plant for sale will be promptly forwarded to this inquirer if sent to the Editor of THE RUBBER AGE, 250 West 57th Street, New York City.

Albert W. Reith

Albert W. Reith, assistant sales manager of the Dayton Rubber Manufacturing Company, died on December 18 at his home in Dayton, O. Mr. Reith, who was 39 years old, had lived in Dayton four years, having come there from Indianapolis.

He is survived by his widow, a son, a daughter, and his parents. Funeral services were held December 20, and burial was in Indianapolis.

HOLSTEIN RUBBER CO. PLACED IN BANKRUPTCY

Manufacturers of rubber flooring for 30 years, the Holstein Rubber Company, Inc., of Hartford and Danbury, Conn., was placed in bankruptcy by the United States District Court on December 28. The first meeting of its creditors will be held at the office of John Keogh, referee in bankruptcy, at Bridgeport, Conn., on January 12.

The Holstein company's line of rubber floor tiling was featured by more than 75 distinct colors in reproduction of the world's most beautiful marbles. Sponge rubber products and mechanical specialties were also produced.

The company occupied its present large one-story factory building at Danbury in the fall of 1928. It was previously located at Hartford and still maintains its offices at that city.

Officers of the company included Joseph S. Holstein, chairman of the board; A. Kusnitt, president; J. M. Holstein, vice-president; Richard J. Marks, Jr., secretary; and Joseph S. Holstein, treasurer. N. L. Holstein was general manager, and Perley D. Hammond acted as factory superintendent.

Club Houses at Cabot Plants Prove Popular With Workers

Believing that a community centre is advantageous to the welfare of employes, Godfrey L. Cabot, Inc., has erected club houses at nearly all its carbon black plants in the Texas Panhandle field. The houses are for use not only of the men, but of their families as well. They are proving popular at all places.

Club houses have been completed at the Armstrong, Bowers, Skellytown and Kingsmill plants. Each building contains billiard tables, bridge and domino tables, a library and a lounging room furnished with leather furniture of the hotel lobby type.

Arrangements are being made to hold tournaments among individuals in each plant. The winners of each plant will compete against each other. Billiard tournaments are under way now, while bridge, forty-two and domino tournaments are in the making.

Montgomery Ward & Company and Sears, Roebuck & Company catalogs, just issued, show tire price cuts of 5 to 15 per cent.

Rubber Industry Leaders See Increased Sales During 1932

WITHOUT painting any rosy pictures of returning prosperity, leaders in the rubber industry nevertheless look forward to higher production and better sales in 1932. This expectation is generally reflected in the various statements issued by executives of the leading companies at the turn of the year.

"We are confidently looking forward to a year of increased business in 1932," states William O'Neil, president of the General Tire & Rubber Company. "There is a limit to the time that people can get along without merchandise that they actually need. I believe that limit has about been reached.

"I do not know, of course, what tire prices will do this year. Certainly, they can't go lower than they are; whether they will rise, or when, I do not know. Raw material prices certainly can't go much lower than they are now."

"In 1930," says Harvey S. Firestone, president of the Firestone Tire & Rubber Company, "according to statistics, 20 per cent more tire mileage was consumed than was sold and approximately the same was true in 1931. We feel, therefore, that this vacuum must soon be filled and that we can look forward to a considerable greater volume of business in 1932."

James D. Tew, president of the B. F. Goodrich Company, says, "I am more optimistic right now than I have been for the past five years. We have reached the turning point in the tire business."

Without showing any enthusiasm over the prospects for business in general in 1932, F. A. Seiberling, president of the Seiberling Rubber Company, emphatically asserts that the rubber industry will be the first to revive. "The most serious check to an upward movement," Mr. Seiberling finds, "is the lack of confidence in the nation's banking system. Any marked upward trend in business is up to the individual who must keep his head.

"Evidences appear on thousands of cars that tires are being run through the tread and into the fabric. Business creates a necessity for the replacements." For his own company Mr. Seiberling predicts a 50 per cent increase in dollar sales.

William H. Lalley, president of the Kelly-Springfield Tire Company, made his remarks a plea for co-operation in the industry. "An industry of such vital importance owes a very definite responsibility to its employes, stockholders, dealers and consumers," he points out. "It has fulfilled the latter, as indicated by the greatest rubber-buying value in history existent today, but it has been willfully lacking in its responsibility to stockholders, dealers and employes. That some equable basis must be found to correct the situation is an obvious necessity which in 1932 we should solve."

The crude rubber situation was treated by John L. Julian, president of the Rubber Exchange of New York. "Serious consideration to the subject of rubber restrictions is now being given by the British and Dutch governments and planting interests," he declares. "Attempts to rationalize supply and demand of crude rubber have been unsuccessful in the past, but the present negotiators may be able to profit from previous mistakes, and more successful in attempts to stabilize prices at a moderately higher level this year."

ST. JOSEPH LEAD LOSES $1,400,000 DURING 1931

The St. Joseph Lead Company, supplier of zinc oxide to the rubber industry, has estimated its profit for the year ended December 31, 1931, at $500,000 after taxes, interest and depreciaion, but before provision for depletion, comparing with a profit on a similar basis of $4,076,460 in the previous year. After charging out $1,900,000 for depletion, the 1931 net loss is estimated at $1,400,000 as against a net profit of $1,509,991 in 1930.

The consolidated balance sheet of the St. Joseph Lead Company and subsidiaries as of November 30, 1931, shows total assets of $43,718,877 as compared to $40,733,728 on December 31, 1930.

U. S. Will Redeem Bonds

The Central Hanover Bank & Trust Company has invited holders of United States Rubber Company first and refunding mortgage bonds, series A, due January 1, 1947, to submit proposals for the sale of sufficient bonds to exhaust the sum of $670,437 at prices not above 105. Holders of the series B bonds have been asked to submit proposals for the sale of their bonds at not more than 110 to exhaust $250,000. The proposals will be opened January 28.

RUBBER COMPANY STOCKS SHOW MIXED MOVEMENTS

Rubber company stock issues showed no definite action in the course of the fortnight, some issues rising and others falling back. Only one new low for 1931 was recorded, that of Seiberling common, which sold off to 3⅜ on the New York Curb on December 29.

The year 1931 closed with severe net losses for every rubber company issue. Goodyear, for example, dropped 26½ points during the year, Goodrich 12, Firestone 1⅛, United States 8, and General about 40. Preferred stocks and bonds also dropped.

Closing prices of the stocks of the principal companies in the industry on January 6, compared with the close of December 19 and with the high low established in 1931, are shown in the following table:

	Last Price		—1931—	
	Jan. 6	Dec. 19	High	Low
Aetna	—	—	5	2
Ajax	—	—	½	¼
American Hard Rubber	—	—	35¼	30
Faultless	—	24⅜	37	24⅜
Firestone	13¾	—	21½	12⅞
do. 6% pfd.	50¾	—	66½	49⅝
Fisk	¼	¼	⅞	¼
do 1st pfd.	⅝	⅝	3	½
General	—	—	140	50
do. pfd.	—	—	87½	64⅞
Goodrich	4½	4	20⅞	3⅝
do. pfd.	12	13	68	10
Goodyear	15	17½	52¾	13¾
do. 1st pfd.	43	42¼	91	35
India	—	—	13½	6
Intercontinental	—	—	4½	½
Kelly-Springfield	1	1¼	3½	⅝
do. 6% pfd.	20	—	45	10
Lee	2	2¼	4⅝	1⅞
Mohawk	—	—	8	1¾
do. pfd.	—	—	35	25
Norwalk	—	—	2	½
Pirelli	—	—	39⅝	26½
Raybestos-Manhattan	10	9¾	29½	8½
Seiberling	4	—	10¾	3⅜
do. pfd.	20	—	50	32
U. S. Rubber	4⅛	4¼	20⅝	3½
do. pfd.	9⅛	7½	36⅛	6⅝

PACIFIC GOODRICH MEN HOLD SALES CONVENTION

Executives of the Pacific Goodrich Rubber Company of Los Angeles, and the B. F. Goodrich Company, Akron, parent company, recently met in Pasadena with wholesale and retail sales and merchandising representatives in a two-day convention.

Speakers included T. B. Farrington, new general manager, and F. E. Titus, general sales manager for Pacific Goodrich; Guy Gundaker, Jr., manager sales promotion department, Akron; K. D. Smith, manager tire development department, Akron; Joe Woodlock, general manager Goodrich Silvertown, Inc., Akron; R. J. Loomis, district manager, San Francisco, and F. L. Hockensmith, Los Angeles district manager, wholesales and retail division; R. E. Jeffers, merchandising and advertising manager of the Pacific Goodrich company.

CARBON PRODUCTS CO. PLACED IN BANKRUPTCY

The first meeting of creditors of the Carbon Products Company, Ltd., Los Angeles, Cal., was held in that city on December 15. The company was placed in bankruptcy on September 16 by the United States District Court for the southern district of California.

The Carbon Products Company, Ltd., was organized as a Nevada corporation for the purpose of manufacturing carbon black and lamp black out of heavy petroleum oil under a special process. The company claimed that its products had been used successfully by the tire factories in the Los Angeles district as well as by makers of paints and printing inks, and a $250,000 plant at Los Angeles was planned a year ago to have a capacity of 30,000 pounds of carbon, carbon black and lamp black daily.

FIRESTONE COTTON MILLS TO INCREASE PRODUCTION

The Firestone Cotton Mills Company will be operated throughout the winter on a three-shift schedule and will employ 1,200 workers instead of the normal 700, according to an announcement by George W. Danielson, agent. Mr. Danielson said that the announcement was authorized by Harvey S. Firestone, president of the Firestone Tire & Rubber Company.

The production of the mills will exceed the actual needs of the company for the present, it was stated, but the excess will be stored until spring.

Baldwin Adds Eight Presses

Because of the need to speed present contracts, the Baldwin Rubber Company, Pontiac, Mich., has added eight mechanical presses to its plant this month, giving the company a fourteen-press capacity. Orders for rubber floor mats, running boards and molded rubber goods are coming in to the factory in quantities sufficiently large to require two shifts of workmen, working six hours a day six days a week, Samuel C. Clark, president, says.

Names in the News

PHILIP J. KELLY IS PROMOTED BY GOODRICH

Philip J. Kelly, for the past three years advertising manager of the B. F. Goodrich Company, was appointed assistant to C. B. O'Connor, general sales manager of the Goodrich tire division, on December 21. P. C. Handerson, formerly a member of the firm of Griswold & Eshleman, Inc., Cleveland advertising agency, and prior to that advertising manager of the Cleveland Twist Drill Company, succeeds Mr. Kelly.

Mr. Kelly joined Goodrich in 1927 as assistant advertising manager and became head of the advertising department when Gates Ferguson resigned that post in August, 1928. He was formerly advertising manager of the Mason Tire & Rubber Company, Kent, O., and is now serving his second year as a vice-president of the Association of National Advertisers.

P. J. KELLY

He was graduated from the University of Illinois in 1917 and was commissioned as a flying officer in the United States Army Air Corps the same year. Following the war, he became a member of the Goodyear Tire & Rubber Company sales organization, where he served for six years, and then engaged in the retail automobile business in Chicago for several years.

WILLIAM O'NEIL, president of the General Tire & Rubber Company, addressed the members of the Akron Real Estate Board at their luncheon meeting on January 4. He called on his listeners to forget the gloom of depression and to look forward to better times.

A. SCHLEICHER, president and general manager of the Samson Tire & Rubber Company Division of the United States Rubber Company, has been elected president of the Los Angeles Chamber of Commerce.

J. T. KIDNEY, manager of the employes service division of the Goodyear Tire & Rubber Company, has been appointed as a member of the Civil Service Commission of the City of Akron by C. NELSON SPARKS, new mayor of the city.

W. C. YOUNG, manager of the aeronautics department of the Goodyear Tire & Rubber Company and sales manager of the Goodyear-Zeppelin Corporation, spoke before the members of the Canton-Massillon Chapter of the American Society for Steel Treatment at Canton O., on December 17. His subject was "Airships and the U. S. S. Akron."

H. E. COOK, general superintendent of engineering of the B. F. Goodrich Company, addressed the annual dinner of all policemen and firemen of the company on December 27.

S. W. CAYWOOD, vice-president of the International B. F. Goodrich Company, left Akron for a trip to South America on December 27. On December 18 he was guest of honor at a farewell dinner in the Akron City Club, at which short talks were made by V. I. MONTENYOHL, B. F. Goodrich Company treasurer and executive vice-president of the export subsidiary; E. P. BONAZZI, E. D. NATHAN, K. D. SMITH, ROBERT JENNINGS, H. C. ECKERT and HENRY ZIMMERMAN. L. L. SMITH acted as toastmaster.

P. W. LITCHFIELD, president of the Goodyear Tire & Rubber Company, left Akron December 30 for a visit to the factory of the Goodyear Tire & Rubber Company of Canada, Ltd., at Toronto, Ont.

G. A. WADDLE, assistant sales manager of the Goodyear Tire & Rubber Company, was elected a member of the board of governors of the Ohio Good Roads Federation at its annual meeting last month.

STACY G. CARKHUFF, secretary of the Firestone Tire & Rubber Company, was elected president of the Portage Country Club, Akron, Ohio, at a meeting of the board of directors December 26.

F. R. LEE, of the Thermoid Rubber Company, was elected first vice-president of Asbestos Brake Lining Association at its annual meeting at Atlantic City, N. J., last month.

CLIFFORD H. OAKLEY, president of the Essex Rubber Company, Trenton, N. J., has returned to his official duties following an operation in a Philadelphia hospital.

HARVEY S. FIRESTONE, president of the Firestone Tire & Rubber Company, celebrated his 63rd birthday last month at Miami Beach, Fla., together with all the members of his family.

SLUSSER, WILSON NAMED AS GOODYEAR DIRECTORS

The resignation of three directors of the Goodyear Tire & Rubber Company and the appointment of their successors was announced after the board of directors meeting at Cleveland, O., on January 4. P. E. H. Leroy, treasurer of the company, was elected a vice-president as well. Mr. Leroy, who has been with Goodyear since 1919, also heads the Credit Corporation of Akron.

The new company directors are Clifton Slusser, Goodyear vice-president and factory manager; R. S. Wilson, Goodyear vice-president and sales manager; and Frank H. Ginn, Cleveland attorney of the firm of Tolles, Hogsett & Ginn, who is a director of the Union Trust Company and of a dozen firms of national scope.

Mr. Ginn succeeds former Congressman James T. Begg of Cleveland on the board. Mr. Slusser and Mr. Wilson succeed Lord Hugh Trenchard, former British air minister and present head of Scotland Yard, and Henry William O'Melveny, Los Angeles attorney. Mr. Slusser joined Goodyear as a stenographer 20 years ago and worked his way up to his present position. Mr. Wilson started with the company as a clerk in 1912 and became sales manager in 1928.

On January 4, Goodyear stepped up tire production to 33,000 units daily. The Akron plant is operating five days a week instead of three as previously. Four six-hour shifts daily are now in effect at the Akron factory.

Honor Du Prene Discoverers

Drs. F. B. Downing, W. H. Carothers and Ira Williams, of E. I. du Pont de Nemours & Company, have been named for the 1931 Honor Roll of *The Nation* for their discovery of Du Prene, the synthetic rubber recently announced. *The Nation's* Honor Roll is announced at the end of each year.

Edward Stoner

Edward Stoner, production superintendent of the tire division of the B. F. Goodrich Company, died in Akron, O., on January 2, following an operation two weeks before for spinal meninigitis. He was forty-five years of age.

Mr. Stoner was production superintendent one year. He joined Goodrich in 1910 as a bead curing room employe and soon was advanced to the foremanship of the department. In 1927 he was made process engineer of the division.

Burial was in Stow Cemetery near Akron. He leaves his widow, five daughters and a brother, all of Akron.

Roland W. Boyden

Roland W. Boyden, who was named as co-receiver of the Fisk Rubber Company, last January, died just before the close of the year. He has been succeeded as receiver by John B. Pierce, member of the law firm of Ropes, Gray, Boyden & Perkins, of Boston, Mass.

New Rubber Goods

Permaflex Caster Tires

Realizing that caster satisfaction is, in great measure, dependent upon the service given by the tires, Jarvis & Jarvis, Inc., Palmer, Mass., has developed a rubber tire for which it claims unusual wearing qualities. This rubber tire was given the severest tests possible, such as being submerged in

oil for weeks, and the manufacturer states that it came out without any loss of strength or resiliency. Battery acids, as well, are said to have no effect on these tires. The Permaflex tire, as it is called, has a hard, unbreakable base and soft rubber tread molded together. Tests are said to show that these tires actually reduce the effort needed to start and pull heavily loaded equipment. The company's J & J heavy duty casters come equipped with Permaflex tires, but these tires will be supplied on other J & J casters at an additional cost or furnished to fit casters or wheels of other manufacturers.

Rubber Jewelry as 'Water Wings'

New "water wing" jewelry, introduced last month, is creating a new vogue on the Riviera because of its double service as adornment and as assistance in floating. A complete set of necklace, wristlets, anklets and a belt is guaranteed to keep the heaviest swimmer afloat in the roughest Mediterranean waves. These items are quickly inflated in the same manner as rubber toys.

Cataract Rubber Hose

A new one-ply braided cord hose under the name of "Cataract" has been placed on the market by the Dunlop Tire & Rubber Goods Company, Toronto, Ont. It is claimed that the process used for its manufacture is one that insures absolute uniformity of strength throughout the length of the hose. It is offered in black only and is designed for sale in the low-price market.

Tibbett on Firestone Program

Lawrence Tibbett, well known singer of the Metropolitan Opera Company, will appear regularly before the microphone on the Monday evening programs of the Firestone Tire & Rubber Company through the entire winter season. Mr. Tibbett's first radio broadcast for Firestone was on January 4.

German Rainwear Styles for 1932

GERMAN manufacturers are introducing a variety of new styles in waterproof clothing for the coming year, including many innovations for men, women and children. The styles shown above are representative of the models that are expected to be popular in that country during 1932.

Rubber News Around the World

BRITISH GOODRICH UNIT SHOWS PROFIT OF £73,333

The British Goodrich Rubber Company, Ltd., has reported for the year ended September 30, 1931, a net profit of £73,333 as compared to earnings in the preceding year of £88,124. Including £16,938 brought forward and £11,905 withdrawn from income tax reserves, the total available for distribution is £102,176.

Last year the preference shareholders' reserve of £49,704 was capitalized and new preference shares were distributed as a bonus to preference shareholders, with the result that the preference dividend this year absorbs £15,179 as against £14,667 a year ago. The distribution on the ordinary shares is maintained at 5 per cent.

The sum of £20,000 is to be added to general reserve (against £15,000), and £25,000 is to be placed to contingencies reserve (against £10,000), leaving £17,644 to be carried forward. Nothing is placed to the preference shareholders' reserve this time, the allocation of £16,814 made last year having completed that reserve.

RUBBER & GUTTA PERCHA SHOWS LOSS DURING 1931

The report of the India Rubber, Gutta Percha & Telegraph Works Company, Ltd., for the 13 months ended September 30, 1931, show a net loss of £51,593 after depreciation and other charges. This compares with a net loss of £95,978 for the preceding year.

The greater part of the loss was said to be due to the writing down of stocks to market prices as of September 30, 1931. The number of orders and volume of production at the Silvertown and Burton factories was proportionately greater than in the preceding year, but selling prices were lower and dollar sales, therefore, declined. The work of closing the company's factory at Burton and the transfer of its manufacturing facilities to Silvertown, announced last July, is now almost completed, but none of the savings resulting from this step has as yet become effective.

Rubber Institution Programs

Two technical papers are scheduled for the meeting of the London and District Section of the Institution of the Rubber Industry at the First Avenue Hotel, London, on January 11. The first is on "Testing Anti-Oxidants" by Dr. H. J. Stern and W. Puffett, and the second is entitled "Some Contributions to the Problem of Fabric Impregnation with Rubber" by Miss M. Huenemoerder in collaboration with Dr. E. A. Hauser. The Scottish Section meets January 20 at the Institution of Engineers and Shipbuilders, Glasgow, to hear Dr. Philip Schidrowitz speak on "Recent Developments in Accelerators."

Wilson Plans English Branch

F. J. Wilson, president of the Wilson Rubber Company, Canton, O., spent last month in England arranging for the establishment of a branch factory at Slough Estate, Slough. The company's line of rubber gloves will be manufactured at the proposed British plant.

Ukranian Rubber Factory

The Krasnyi-Resinstchik is to open a new rubber manufacturing plant at Kieff. It will be the first rubber works in the Ukraine, and the production will consist of mechanical goods, proofings, etc. It is expected eventually to reach a turnover of 10,000,000 rubles annually.

New Black for Soles

Bideford Black, Ltd., which introduced its mineral black pigment under the name of "Biddiblack" last spring, has now announced the completion of extensive tests with its "Bettablack" for the manufacture of black soleings. The company suggests that by substituting 20 or 25 per cent of gas black by "Bettablack" the mixing process is facilitated and costs substantially reduced.

November Golf Ball Imports

Imports of golf balls into the United States during November numbered 242,720, with a value of $71,265, the largest number of balls brought into this country in a single month since June, 1930. These imports compare with the October total of 44,653 balls, valued at $10,745, and with the November, 1930, total of 78,240 balls, worth $25,586. The unit value of November imports was 29.4 cents per ball as compared to 24.1 cents in October and 33.0 cents in September.

FIRM OF FENNER, BEANE & UNGERLEIDER EXPANDS

Following the consolidation which resulted in the formation of Fenner, Beane & Ungerleider, the firm acquired the stock and commission business and the two New York offices of the retiring firm of Moyse & Barry on December 28. Both firms are members of the Stock Exchange and other security and stock exchanges.

The announcement of the retirement of Moyse & Barry from active business and the acquisition of their offices by Fenner, Beane & Ungerleider discloses further expansion of the business of the latter firm, which on December 1 became the second largest wire house in the financial district through the consolidation of Fenner & Beane and Samuel Ungerleider & Co. The firm of Moyse & Barry was formed about two years ago to take over the business formerly conducted under the firm name of Moyse & Holmes.

GOODYEAR OF CANADA EARNED ITS DIVIDENDS

The Goodyear Tire & Rubber Company of Canada, Ltd., earned its dividends in full during 1931 and added to surplus after setting up liberal reserves for depreciation, inventories, accounts receivable, and depreciation in Canadian government bonds, according to a statement to stockholders by C. H. Carlisle, president.

"As we are all aware," Mr. Carlisle said, "Canada has had to bear its proportionate share of the burden of world-wide restricted business conditions. Export and car manufacturers' business fell off very materially this year, but other domestic business has held up quite well. There are, as yet, no indications of any marked stability for 1932 business and we are, therefore, making no bonus payment on the common stock.

"During the year we have set aside very liberal reserves for plant depreciation, goods and raw materials on hand, forward commitments, accounts receivable and depreciation on our investments in Canadian government bonds. The book loss on these bonds at this time is quite material, but no one acquainted with Canadian affairs would consider that these bonds will eventually show a loss.

"After making the above liberal allowances, your company has over $1,400,000 in accounts receivable, over $6,000,000 in government bonds and cash, has earned its dividends in full and has added to surplus."

SHIPMENTS FROM MALAYA LOWER DURING DECEMBER

Exports of crude rubber by Malaya declined from 48,012 tons in November to 35,741 tons during December, a cable to The Rubber Exchange of New York, Inc., reported. Shipments by the foremost producing country in December, 1930, amounted to 41,889 tons.

Malayan shipments of crude rubber to the United States declined from 36,049 tons during November to 17,754 tons in December, comprising the year's smallest monthly shipments.

Ceylon exported a total of 6,891 tons in December against 4,853 tons in November and 6,932 tons in December, 1930. Of the Ceylon total 4,866 tons were destined for United States ports, compared with 3,424 tons in November and 3,902 tons during December a year previous.

Whiteness Tester Introduced

An instrument, using a photo-electric cell and known as the Blancometer, by which the degree of whiteness of an object can be measured and compared with some standard, has been designed by Adam Hilger, Ltd., London, England. For the standard white surface, magnesium oxide deposited on greyed aluminum is used, the former material giving the purest white known.

Current Crude Rubber Items

MALAYAN OUTPUT STAYS HIGH DURING NOVEMBER

Production of rubber by small estates, largely native, in Malaya, increased from 16,283 tons in October to 17,327 tons during November. Production of estates over 100 acres in size declined slightly from 21,191 tons in October to 21,105 tons in November.

Dealers' stocks of crude rubber at the same time were increased from 17,988 tons to 20,865 tons, while stocks on estates were increased from 20,295 tons at the end of October to 21,800 tons at the close of November.

A group of 615 producing companies reporting to the Rubber Growers' Association shows a production for November of 22,974 tons as against 23,183 tons for the month of October. For the first eleven months of 1931, this group reports output of 238,875 tons against 239,369 tons in the same period of 1930. Those companies in British North Borneo, Ceylon, India and Burma continue to show reductions from the 1930 figures, while those in Malaya and the Dutch East Indies reveal higher outputs.

Another comparison made by the Commercial Research Department of the Rubber Growers' Association shows that 248 companies increased their output in November as against November, 1929, while 288 companies reduced their production.

RUBBER FUTURES MARKET REOPENED AT ANTWERP

The Antwerp rubber futures market, which at one time enjoyed considerable prosperity, was reopened on January 4 as a result of a decision by the Chambre Arbitrale et de Conciliation pour le Caoutchouc at Antwerp.

Trading on this market which existed before the World War must be carried out through a business firm in Antwerp (banks and foreign business houses being excluded) through the Caisse de Liquidation erected by the Banque Union Financiere D'Anvers, guaranteeing the contracts registered.

Type of rubber dealt in will be plantation (Hevea Braziliensis standard ribbed smoked sheet) and the contract will be 3,000 kilos, or about 6,600 pounds. Quotations will be in Belgian francs per kilogram and trading in the current and eight succeeding months is provided for. Trading hours will be 9 a. m. to 5 p. m. daily, except on Saturday when the market will be closed. The only call held will be at 2:15 p. m.

New Clearing House Member

Haydon, Stone & Company, 25 Broad Street, New York City, have been admitted as members of the Rubber Exchange Clearing House, Inc. Claude W. Peters of that firm was admitted to membership on the Rubber Exchange of New York on December 2.

"All-Rubber" Ship Arrives

The *S.S. Siljestad,* chartered by the Barbour Steamship Company to carry a cargo exclusively of rubber at low rates, arrived at New York City on December 24 and docked two days later. It brought in 65,694 cases of crude rubber, or slightly less than 6,500 long tons, from Singapore, Port Swettenham and Penang.

Form New Rubber Trust

The organization of a new firm under the name of Rubber Trust, Ltd., with nominal capital of 25,000,000 taels, is reported at Shanghai. The prospectus states as objectives the purchase for cash or by exchange of securities of approved plantation companies. Secondary objects are said to be the making of loans to rubber plantations, underwriting new plantation issues, and amalgamation of groups of rubber estates.

Italy Admits Rubber Free

The government of Italy has issued a Royal Decree-Law, providing for further "temporary duty-free importation" of raw rubber and gutta percha for the manufacture of various articles. Under the same concession, the country will admit free rubber in sheets, cut, in various colors, for the manufacture of small balloons until November 15, 1933.

Ford Estate Shows Progress After $8,000,000 Investment

DEFINITE progress appears to have been made on the 1,000,000 hectare concession taken over by the Ford Motor Company on the Tapajos River in Brazil for the purposes of growing crude rubber. It has been Mr. Ford's decision to have Brazilians build their own municipality, and a large number of employes and laborers have already made up their minds to work permanently for the Companhia Ford Industrial do Brazil. More than 3,000 people now live on the concession.

It is estimated that already some $8,000,000 has been invested on Ford's Amazonian estate. Mr. Ford intends to transform his rubber plantation into a modern and comfortable community, self-governing and under the direct control of the State of Para.

In 1928 the first of Ford's pioneers were sent from Detroit to fight and win the Tapajoz jungle and transform the old Boa Vista Farm into a living community. Those were the days when malaria, beri beri and other tropical diseases had their headquarters right on the Ford concession.

The small and uncomfortable native tiled roofed house, known today as the "Boa Vista House," located on the bank of the river, was the first residence of those Americans, who had to live with Brazilians and employes of other nationalities for a number of months.

The company in an effort to attract help to the plantation and build for the new municipality of Boa Vista a permanent population, has divided the old district of Prahinha into plots of land.

Engineers and surveyors are now busy transforming that portion of jungle into a city. Employes are entitled to a plot of land free of charge and the company will buy any house from those who build them if they quit their jobs.

Seventy applications for building rights at Prahinha have been received by the company and it is expected that 1932 will see the establishment of the municipality of Boa Vista.

With this new development program fully accomplished, Mr. Ford's great rubber concession will be composed of five different districts connected one with the other by a chain of solid roads and by the penetration railroad, which takes care of communication and transportation between the plantation and the executive headquarters. The penetration railroad, covering now about seven miles of the estate, is to be extended fourteen miles.

The district reserved to the residence of American employes sent from Detroit, known as Villa Americana, is completed. A large swimming pool, playground and garages are at the disposal of the executives and contracted white men.

The Villa Brasileria is the living, shopping and amusement district of the native population of Boa Vista, numbering above 3,000 people. Stores, restaurants, cafes, tailors, shoemakers, bakeries and dentists are installed at the Villa Brasileria.

The company will erect a moving picture theatre and a church within the next few months. The school building is the most prominent building on the entire estate and the company through a staff of Brazilian teachers is coaching over 250 children, while evening classes are held for adults of both sexes.

Laborers have also their swimming pool and a splendid playground, where Brazilians, in spite of the great heat, play endless matches of football every Sunday.

On the rubber plantation trees planted early in 1929 are growing rapidly and promise to produce latex within the next few years.

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

HELP WANTED

OLD ESTABLISHED COMPANY, manufacturing high-grade line of mechanical rubber goods, has openings for several salesmen with clientele. State age, experience, previous connection, territory, clientele. Commission with drawing account can be arranged for proper parties. Address Box 645, THE RUBBER AGE.

POSITIONS WANTED

Production
Engineering Executive

EXPERIENCE in sales of Equipment to Rubber Manufacturers. Possesses thorough knowledge of the manufacture of hard rubber, drug sundries, molded mechanicals, and specialties.

Present connection ten (10) years; previously associated with the largest rubber firms in their respective lines.

Open for a full or part time proposition. Would consider sales representation with either an equipment manufacturer or a large rubber manufacturer.

Thoroughly familiar with the Philadelphia and New York territories and have covered the New England and the Great Lakes districts.

Location immaterial, best of health, age 37 years. Can furnish excellent credentials. Address Box 644, THE RUBBER AGE.

PUBLICITY AND SALES Promotion man or Advertising Manager—Wide experience in rubber and allied industries. Has also carried out considerable market research work. Can take entire charge of department. Expert knowledge of printing and direct mail. Moderate salary or part time on fee basis. Address Box 635, THE RUBBER AGE.

Let me take care of your
CHEMICAL WORK
and
MANUFACTURING PROBLEMS
on a monthly fee basis.

FREDERICK J. MAYWALD
Rubber Chemist
305 Hoboken Road
Carlstadt **New Jersey**

POSITIONS WANTED

PURCHASING AGENT, 38 years old, 10 years' experience buying mill supplies. Address Box 638, THE RUBBER AGE.

FABRIC ANALYST—Textile school graduate, 9 years' experience in fabrics. Capable of setting up specifications and developing. Know manufacture and present prices. Able to take charge of inspection department and know reasonable tolerances to allow. Will go anywhere. Address Box 636, THE RUBBER AGE.

ENGINEER—University technical education. Business and management training. 12 years' design, installation, maintenance and construction rubber machinery. 4 years' industrial layouts, costs, safety, employment, development, production and organization work. Executive training and ability. Age 38, married. Any location Address Box 640, THE RUBBER AGE.

FACTORY EXECUTIVE desires connections in Chicago or vicinity. Very broad experience in plant supervision, accounting and manufacture of hose, belting and packings. Can offer potential outlets for molded and other items. References from previous connection and others reveal trade acquaintance. Address Box 641, THE RUBBER AGE.

CREDIT and collection manager, 23 years' experience in rubber industry, desires connection. Has also been office manager, cashier and possesses a good practical knowledge of general accounting. Address Box 642, THE RUBBER AGE.

SEVENTEEN years' experience in tire production, last ten years as Superintendent of plant. Desire proposition to sell and distribute products used by the tire industry, with office in Akron. Address Box 643, THE RUBBER AGE.

Consulting Rubber Technologist

PRACTICAL

Twenty years' experience with the largest and most successful companies in the country

Physical and Chemical Testing
Special facilities for abrasion and quick age tests

Expert Advice to Correct Factory Trouble

New Processes and Formulas Developed

R. R. Olin Laboratories
P. O. Box 372, AKRON, OHIO
Telephones: Sherwood 3724; Franklin 8551

POSITIONS WANTED

SALES REPRESENTATIVE open to handle line of rubber goods in New York and vicinity. Knows automobile tires, druggist sundries, hosptial supply lines. Willing to develop market for any line or act as plant manager. Address Box 647, THE RUBBER AGE.

BUSINESS OPPORTUNITY

Tariffs

THOSE wanting rubber goods manufactured and distributed in Britain, should write The Empire Rubber Company, 25 Victoria Street, London, S. W. 1.

SALESMAN now handling line of drug sundries, golf balls, toys, etc., in Ohio, West Virginia, Michigan, Western Pennsylvania, Western New York, is desirous of adding a side line in above territory. Now covering following trades: Wholesale Drug, Hardware, Sporting Goods, Stationery, Department Stores, Syndicate and Chain Drug Stores. Have following and can increase your business. Address Box 646, THE RUBBER AGE.

British Tariffs

MANAGING DIRECTOR of Rubber Companies with wide experience would negotiate with an up-to-date American concern wishing to erect works in England. Spare land, power and water available, or Solo sites for separate company. Finance for a reputed company would be considered—Would collaborate as English Director and supervisor with American management. Advise class of goods and turnover expected, suggestions re Capital supported by Balance Sheets (strictly confidential). Box L11, W. H. Smith & Son, Ltd., Blackfriars, Manchester, England.

SURPLUS RAW MATERIALS

WE PURCHASE surplus and discontinued stocks of Chemicals, Pigments, Accelerators, Solvents and Raw Materials, regardless of quality or condition. Send us a complete list of such dead stocks, whereupon we will make you a cash offer.

BARCLAY CHEMICAL COMPANY
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CASH FOR YOUR SURPLUS AND CLOSE OUT.—Rubber Goods, Chemicals, Colors, Pigments, Oils, Waxes, Glues, Accelerators, Metals. Any quanity. Any condition. Also Wastes, By-Products, Residues of all kinds.

CHEMICAL SERVICE CORP.,
36 Park Row, New York, N. Y.

LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JANUARY 5, 1932

Crude Rubber

DURING the month of December the average of the daily closing prices for smoked ribbed sheets at New York was 4.635 cents a pound. This marks a new record low for any month in the history of the industry and compares with the previous low of 4.65 cents in November and with 9.05 cents a pound in December, 1930.

For the entire year of 1931 the average of the daily closing prices was 6.17 cents, which, of course, represents the lowest figure for any year in the history of the commodity. The average for 1930 was 11.98 cents.

The year just ended was marked by a steady continuation of the decline in the price of the commodity. Opening on January 2 at 8⅜ cents, the commodity never rose more than a quarter of a cent above that figure, but dropped steadily to reach its bottom of 4¼ cents on December 8.

Prices quoted on the New York outside market at the close January 5 follow:

Plantations—			
Ribbed Smoked Sheets—			
Spot-Jan.	.04⅜	@	.04½
Jan.-Mar.	.04½	@	.04⅝
Apr.-June	.04¾	@	.04⅞
First Latex, crepe spot	—	@	.05
Amber Crepe, No. 2	.04⅝	@	.04½
Amber Crepe, No. 3	—	@	.04¾
Amber Crepe, No. 4	.04¼	@	.04¾
Brown Crepe, Clean thin	—	@	.04¾
Brown Crepe, rolled	—	@	.04⅛
Liquid Latex, per gal.	.70	@	.80
Paras—			
Up-river, fine	.05¼	@	.05½
Up-river, coarse	Nominal		
Acre Bolivian, fine	.05¾	@	.06
Caucho Ball, Upper	.03	@	—
Centrals—			
Central scrap	.04	@	—
Esmeraldas	.04	@	—
Balata—			
Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
January	3	@	3⅛d
February	3	@	3⅛d
March	—	@	3⅛d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot	—	@	2⅝d

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

Reclaimed Rubber

There was no appreciable change in the market position of reclaim during the fortnight. The new drop in the price of crude rubber made the market slightly weaker, but no decline in quotations resulted. The average value of the 395 tons exported during November was given as 4.29 cents a pound as against an average value of 4.53 cents set for October shipments. Late price quotations for the various grades of reclaimed rubber were as follows:

High Tensile				
Super-Reclaim Black	lb.	.05½	@	.05¾
High Tensile Red	lb.	.05¼	@	.05½
Shoe				
Unwashed	lb.	.05¼	@	.05½
Washed	lb.	.06	@	.06¼
Tube				
No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.05	@	.05¼
Tires				
Black	lb.	.04¼	@	.04½
Black, selected tires	lb.	.04½	@	.04¾
Dark Gray	lb.	.05	@	.05¼
Light Gray	lb.	.06¼	@	.06½
White	lb.	.05¾	@	.06
Truck, Heavy Gravity	lb.	.05⅝	@	.05½
Truck, Light Gravity	lb.	.05½	@	.05¾
Miscellaneous				
Mechanical blends	lb.	.03¼	@	.03½

Scrap Rubber

The drop in crude rubber prices during the course of the fortnight further weakened the market for rubber scrap. Demand from reclaiming plants is expected to increase, however, as the year gets under way. The latest prices quoted for the different grades follow:

(Prices to Consumer)

Auto tire peelings	ton	19.00	@	21.00
Mixed auto	ton	6.00	@	8.50
Bicycle tires	ton	5.00	@	6.00
Clean solid truck tires	ton	23.50	@	25.00
Boots and shoes	ton	15.00	@	17.50
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.03¼	@	.03⅝
Inner tubes, No. 2, compounded	lb.	.01¾	@	.01⅞
Inner Tubes, Red	cwt.	1.40	@	1.50
Air Brake Hose	ton	9.00	@	10.00
Rubber Hose	ton	8.50	@	9.00

Cotton

DURING the month of December the average of the daily closing prices for spot middling upland cotton was 6.24 cents a pound, the lowest for any month in many years. This compares with the November average of 6.44 cents and with the December, 1930, figure of 10.02 cents a pound.

For the entire year of 1931, the average of the daily closing prices was 8.56 cents, also the lowest in years. This compares with the 1930 average price of 13.57 cents a pound.

High, low and closing prices on the New York Cotton Exchange on January 5 were as follows:

	High	Low Jan. 5	Close	Close Dec. 19
Jan.	6.18	6.10	6.18	——
Mar.	6.31	6.21	6.27	6.42
May	6.48	6.37	6.44	6.60

Tire Fabrics

Tire fabric prices remained steady, reflecting the comparative stability of the quotations for raw cotton. Late quotations are as follows:

(Prices Net at the Mill)

CORD				
Peeler, carded, 23/4/3	lb.	.25½	@	.26
Peeler, carded, 23/5/3	lb.	.24½	@	.25
Peeler, carded, 13/3/3	lb.	.22	@	.22½
Peeler, carded, 15/3/3	lb.	.22½	@	.23
Egyptian, carded, 23/5/3	lb.	.35	@	.36
Egyptian, combed, 23/5/3	lb.	.40	@	.40½
CHAFERS				
Carded, American, 8 oz.	lb.	.23	@	.23½
Carded, American, 10 oz.	lb.	.23	@	.23½
Carded, American, 12 oz.	lb.	.22½	@	.23
Carded, American, 14 oz.	lb.	.20½	@	.21
LENO BREAKER				
Carded, American, 8¼ oz.	lb.	.20	@	.25
Carded, American, 10¼ oz.	lb.	.20	@	.25
SQUARE WOVEN				
Carded, American, 17¼ oz. 23-11 ply	lb.	.24½	@	.25
Carded, American, 17¼ oz. 10-ply	lb.	.20½	@	.21

Sheetings

Except for fractional weakness in one or two sizes, the market for sheetings remained steady during the fortnight. Late prices follow:

40-inch, 2.50-yard	yd.	—	@	.05½
40-inch, 2.85-yard	yd.	—	@	.05
40-inch, 3.15-yard	yd.	—	@	.05⅝
40-inch, 3.60-yard	yd.	—	@	.04¾
40-inch, 3.75-yard	yd.	—	@	.04
40-inch, 4.25-yard	yd.	—	@	.03¾

Ducks

Cotton ducks were unchanged in price through the past two weeks, but the market continued to be dull. Prices quoted for the various types remain as follows:

Belting and Hose	lb.	—	@	.19
Enameling	lb.	.18	@	.20
Single filling	lb.	.08	@	.08¼
Double filling	lb.	.09½	@	.09¾

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons

FROM DECEMBER 21, 1931, TO JANUARY 5, 1932

		Spot	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Sales
Dec.	21	4.70	4.75	4.83	4.90	4.97	5.05	5.10	5.15	5.20	5.25	5.35	5.45	——	101
	22	4.72	4.79	4.88	4.98	5.04	5.10	5.15	5.20	5.25	5.31	5.40	5.50	——	78
	23	4.72	4.78	4.87	4.96	5.02	5.08	5.14	5.20	5.25	5.30	5.39	5.49	——	80
	24	4.75	4.82	4.93	5.05	5.10	5.15	5.20	5.26	5.32	5.38	5.48	5.58	——	58
	28	4.85	4.93	5.03	5.13	5.17	5.21	5.26	5.32	5.38	5.45	5.55	5.65	——	63
	29	4.82	4.81	4.94	5.07	5.12	5.17	5.22	5.27	5.35	5.43	5.53	5.63	——	79
	30	4.81	4.79	4.92	5.05	5.10	5.16	5.21	5.27	5.34	5.42	5.52	5.62	——	70
	31	4.80	4.78	4.81	4.85	4.92	5.00	5.05	5.10	5.17	5.25	5.35	5.45	——	99
Jan.	4	4.43	4.43	4.47	4.52	4.57	4.63	4.69	4.75	4.82	4.89	4.98	5.07	5.16	124
	5	4.41	4.40	4.45	4.51	4.56	4.62	4.68	4.74	4.80	4.86	4.95	5.04	5.13	67

CHEMICALS

WHILE sales of rubber chemicals and compounding ingredients fell off during the past twelve months in proportion to the lessened rate of rubber factory production, the price structure has varied only slightly. Carbon black, which dropped three cents a pound in the course of 1930, receded another half-cent last year, and there were slight fluctuations among a few other compounding materials and a little weakening in the case of some accelerators and softeners.

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Whites			
Lithopone, Albalith	lb.	.05¼@	.05¾
Lithopone, Azolith	lb.	.05¼@	.05¾
Titanium oxide	lb.	.21 @	—
Titanox B	lb.	.06½@	.07
Titanox C	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Azo: ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅝@	.06⅞
Horsehead Brand: Special	lb.	.07 @	.07½
XX Green	lb.	.07 @	.07½
XX Red, lead free	lb.	.06½@	.07
Kadox, black label	lb.	.10⅜@	.10⅞
blue label	lb.	.09⅜@	.09⅞
red label	lb.	.08 @	.08½
St. Joe, black label	lb.	.06½@	.07
red label	lb.	.06½@	.07
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.06½@	.07
Anaconda, selected lead free	lb.	.07 @	.07½
White seal	lb.	.11⅜@	.11⅞
Green seal	lb.	.10⅜@	.10⅞
Red seal	lb.	.09⅜@	.09⅞
Yellows			
Chrome	lb.	.16¼@	.17
Ocher, domestic	lb.	.01⅝@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03

BLACKS

Arrow "Aerfloted" c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. work, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.03 @	.07
uncompressed	lb.	.03 @	.07
"Certified," Cabot c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Disperso" f.o.b. La.	lb.	.031 @	.071
f.o.b. Texas	lb.	.03 @	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.04 @	.08
"Fumonex"	lb.	.02½@	.06
"Gastex," f.o.b. Texas	lb.	.02½@	.04¼
Lampblack	lb.	.07 @	.10
"Micronex" c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Supreme"	lb.	.03 @	.07
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United, "Dixie" and "Kosmos" c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Velvetex"	lb.	.02 @	.05
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	6.50 @	8.00
Colloidal	lb.	.05 @	.08
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Magnesia, carbonate	lb.	.08¾@	.11
Mica	lb.	.04½@	—
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.75 @	2.00
Quaker	ton		
Superfine	ton	10.00 @	12.00
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09¼@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	28.00 @	48.00
Pioneer, MR, solid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crude		— @	.04½
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.07½@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured, No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.37¼
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03⅝@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Aromatics—Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.07 @	.09
White	lb.	.08 @	.14
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

THE year 1931 ended with United States crude rubber consumption approximately 348,000 long tons as against 371,120 long tons in 1930. The tire factories of the country turned out slightly more than 49,000,000 pneumatic casings in 1931 as against 50,965,000 units in 1930. Imports of crude rubber far exceeded domestic consumption and stocks on hand climbed from 203,221 long tons at the close of 1930 to well above 300,000 long tons at the end of 1931.

By far the greatest loss in rubber absorption was experienced by the leading tire factories, the majority of other branches of the rubber industry showing little or no decline from 1930 activity. A few minor divisions of rubber manufacturing, such as sporting goods, heels and soles, insulated wire and drug sundries, maintained higher production for the whole year than was the case in 1930 or even 1929.

The crude rubber statistical picture has not been favorable, production showing but a slight decrease and stocks consequently mounting to unprecedented heights throughout the world.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,328	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,978	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	289,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,778,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,783	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,836	1,349,690	21.24	48,325
June	41,663	18,799,307	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,530,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.	38,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,507	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,174	1,028,653	14.47	36,819
July	35,182	10,553,944	13.39	2,807	759,260	12.08	32,375
Aug.	35,713	9,666,362	12.08	2,357	655,773	12.42	33,356
Sept.	35,380	8,460,812	10.68	1,514	430,772	12.70	33,866
Oct.	46,069	9,893,980	9.59	2,432	419,325	7.70	43,637
Nov.	29,401	5,700,086	8.66	1,300	271,348	9.32	28,101
Dec.	37,300	7,175,242	8.59	2,168	542,197	11.17	35,132
1931:							
Jan.	36,307	7,190,591	8.84	1,706	350,480	9.17	34,601
Feb.	34,005	6,564,969	8.62	1,799	357,078	8.86	32,206
Mar.	40,393	7,356,505	8.13	2,800	534,180	8.52	37,593
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,233	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,131	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.	43,435	4,742,218	4.72	1,403	198,284	6.31	43,435
Dec.							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1924	1925	1926	1927	1928	1929	1930	1931
Jan.	29,058	29,638	32,196	31,518	34,403	43,002	36,194	28,557
Feb.	25,736	29,761	31,136	30,137	33,702	41,594	32,302	28,797
Mar.	28,385	33,498	32,936	36,141	35,688	44,730	35,450	32,788
Apr.	27,129	34,139	32,696	35,871	32,772	47,521	39,686	33,321
May	25,845	35,322	29,364	34,592	37,333	49,233	39,386	37,817
June	22,753	35,822	28,598	33,801	37,676	43,227	34,195	37,916
July	23,396	36,053	27,577	29,219	37,407	41,526	29,508	31,937
Aug.	28,982	35,909	34,533	33,460	42,927	38,274	30,850	27,586
Sept.	31,497	31,691	32,904	27,214	39,882	34,707	25,515	23,638
Oct.	31,520	29,047	29,836	26,790	40,857	34,800	27,516	22,277
Nov.	27,280	28,253	28,080	26,792	37,461	27,659	23,691	22,943
Dec.	27,199	28,748	26,293	25,492	31,232	23,531	21,687	.....
Totals	328,769	388,481	366,149	371,027	441,340	469,804	375,980	.....

Figures on Quarterly Basis

Quarter	1924	1925	1926	1927	1928	1929	1930	1931
Jan./Mar.	87,609	95,263	94,301	99,216	103,558	128,565	101,610	89,652
Apr./June	75,674	104,099	87,109	103,242	103,500	139,292	112,229	107,755
July/Sept.	83,813	99,493	93,793	89,210	117,573	113,746	85,261	83,632
Oct./Dec.	92,656	85,789	83,212	80,860	117,597	84,872	72,020	
Totals	339,752	384,644	358,415	372,528	442,227	466,475	371,120	

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1930	1931	MONTHS	1930	1931
January	25,731,000	26,844,000	July	38,256,000	39,459,000
February	26,509,000	26,133,000	August	37,433,000	39,459,000
March	31,029,000	31,037,000	September	37,823,000	36,670,000
April	34,549,000	33,400,000	October	32,267,000	35,051,000
May	36,497,000	35,716,000	November	30,984,000	30,640,000
June	35,902,000	38,375,000	December	29,094,000	

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave
1929																																
Sept.	—	—	20¼	20¼	20¼	20¼	—	20½	20½	20%	20%	20¼	20%	20¼	—	20%	20%	20%	20%	20%	20%	—	20½	20¼	20¼	20¼	19%	—	—	19%	—	20%
Oct.	19¾	19½	19½	19%	—	17	17½	16%	20%	20%	20%	20%	20%	20%	20%	20%	20	—	16%	20	19	19%	19½	19	19	19	18½	18¾	18¾	18¾	—	19%
Nov.	17¾	17½	—	17½	—	17	17½	16%	—	16%	16%	16%	15%	16%	—	17	17	16¾	16	16%	16%	16%	16%	16%	16%	16%	16%	16%	16¼	16%	—	16%
Dec.	—	16¼	16¼	16¼	16¼	16¼	—	16%	16½	16½	16%	16%	16%	16%	—	—	16¾	16	15%	15%	15%	15%	15%	15%	15%	—	15%	15%	16¼	16%	16%	16%
1930																																
January	15%	15%	15%	15%	—	15%	15%	15	14%	14½	15%	14%	14%	14%	14%	14%	14%	15%	15%	15%	14%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
February	—	15	15	15	15%	15%	15%	15%	—	15%	15%	15%	15%	15%	15%	15%	15%	16	16	16	16	15%	16	16	16	16	15%	15%	15%	15%	15%	15%
March	15¾	—	15%	15%	15¼	15%	15%	15%	—	15%	15%	15%	15%	15%	15%	15	15	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
April	15½	15½	15½	15¼	15¼	15¼	15¼	15¼	—	15%	15%	15%	15%	15%	15%	15	15	15%	15%	15%	15%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15
May	14%	14%	14%	14%	14%	14%	14%	14%	—	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
June	—	13%	13%	13%	13%	13%	13%	—	12%	12%	12%	12%	12%	12%	12%	12	12	12	11%	11%	11	12	12	12	12	12	12	12	13	13%	13%	12½
July	12¼	12	12	—	10½	10½	10¼	—	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	10%	10%	11%	11%	10%	10%	10%	10%	10%	10%	10%	10½	11¼
August	10%	—	—	10½	10%	—	10%	10%	10%	10%	10%	10%	9%	9%	9%	9%	9%	9%	9%	—	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	—	10
September	9%	9%	9%	9%	9	8½	—	8½	8½	8½	8%	8%	8%	8¼	8¼	8¼	8%	8%	8%	8	8	8¼	8½	8	8	8	8	8	7½	8%	8%	8%
October	7½	8%	8¼	8	—	7½	8	8	7½	8½	8%	9%	9%	9%	—	9¼	9¼	9	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8
November	8%	8%	8%	8%	8%	—	8%	8%	9%	9%	9%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8
December	9½	9½	9½	9¼	9¼	9¼	—	9%	9%	9%	9%	9%	9%	9%	9	9	9	9	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8
1931																																
January	—	—	—	—	—	8½	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
February	—	—	—	7¾	7¾	7%	7%	7%	7%	8	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
March	—	—	—	8	—	8¼	8¼	8½	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6½
April	6%	6%	6	—	—	6¼	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6½
May	6	6%	6%	—	6%	6½	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
June	6%	6%	6%	6%	—	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
July	6%	—	6%	6%	5%	5%	5½	—	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	5%	6%
August	5%	—	5%	5%	5%	5½	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
September	5¼	5¼	5¼	5%	5%	—	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
October	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
November	4½	4½	4½	4½	4½	4½	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
December	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1932																																
January	—	—	—	4½	4½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	40.15
1911	141.30	1915	65.85	1919	45.70
1912	121.60	1916	72.50	1920	36.36
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Month	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24	8.34
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85	7.70
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34	7.71
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	14.93	6.43
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	14.24	6.49
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	12.45	6.35
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	11.24	6.37
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59	9.96	5.38
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	8.28	5.08
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	8.20	4.87
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	9.01	4.65
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	9.05	4.64
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	11.98	6.17

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.
1	2¾	—	2⅞	—	17	2⅞	2⅞	3	—
2	2⅞	2⅞	2⅞	—	18	—	3	3⅛	—
3	2⅞	2¾	2⅞	—	19	3	2⅞	3¼	—
4	—	2¾	3	3⅛	20	3	2⅞	—	—
5	2⅞	2⅞	3	3⅛	21	3	2⅞	3¼	—
6	2⅞	2⅞	—	—	22	3	—	3¼	—
7	3	3	3	—	23	3	2⅞	3¼	—
8	3	—	3	—	24	2⅞	3	3¼	—
9	3	3	3	—	25	—	3	—	—
10	2⅞	2⅞	3¼	—	26	2¾	2⅞	—	—
11	—	2⅞	3¼	—	27	2¾	2⅞	—	—
12	2⅞	2⅞	3⅛	—	28	2⅞	2⅞	3¼	—
13	3	2⅞	—	—	29	2¾	—	3¼	—
14	2⅞	2⅞	3⅛	—	30	2¾	2⅞	3¼	—
15	3	—	3⅛	—	31	2¾	—	3¼	—
16	3	2⅞	3	—					

Average Monthly Price Per Pound

Month	1929 Pence	1930 Pence	1931 Pence	Month	1929 Pence	1930 Pence	1931 Pence
Jan.	9.942	7.471	4.160	Aug.	10.505	4.880	2.385
Feb.	11.875	7.948	3.823	Sept.	10.160	4.075	2.524
Mar.	12.135	7.595	3.822	Oct.	9.620	4.023	2.898
Apr.	10.490	7.391	3.082	Nov.	8.442	4.440	2.890
May	10.717	6.926	3.035	Dec.	7.958	4.516	3.115
June	10.580	6.195	3.082	Average			
July	11.065	5.648	3.048	for Year	10.291	5.926	3.155

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Dec.	Jan.	Day of Month	Dec.	Jan.	Day of Month	Dec.	Jan.
1	6.10	——	11	6.20	——	21	6.30	——
2	6.10	——	12	6.15	——	22	6.30	——
3	6.20	——	13	——	——	23	6.30	——
4	6.15	6.25	14	6.15	——	24	6.40	——
5	6.15	6.35	15	6.20	——	25	——	——
6	——	——	16	6.20	——	26	——	——
7	6.10	——	17	6.20	——	27	——	——
8	6.10	——	18	6.35	——	28	6.40	——
9	6.00	——	19	6.40	——	29	6.55	——
10	6.05	——	20	——	——	30	6.55	——
						31	6.50	——

Average Monthly Price Per Pound

	1929 Cents	1930 Cents	1931 Cents		1929 Cents	1930 Cents	1931 Cents
Jan.	20.22	17.21	10.27	Aug.	18.62	12.03	7.21
Feb.	20.21	15.62	10.96	Sept.	18.83	10.85	6.52
Mar.	20.19	15.13	10.90	Oct.	18.46	10.63	6.32
Apr.	20.29	16.39	10.19	Nov.	17.53	10.96	6.44
May	19.41	16.43	9.38	Dec.	17.28	10.02	5.24
June	18.74	14.48	9.05	Average			
July	18.62	13.10	9.28	for Year	19.03	13.57	8.56

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	76,342	131,744	209,487	93,330	61,863	56,187	169,672	193,607	265,674
Feb.	90,058	143,863	212,833	75,790	63,404	63,680	165,848	207,267	276,513
Mar.	100,536	141,843	217,804	67,065	63,646	63,133	167,601	205,489	280,937
Apr.	107,659	148,272	228,382	65,798	63,261	56,700	173,457	211,533	285,082
May	97,192	146,179	220,799	65,793	63,168	73,564	162,985	214,347	294,363
June	92,061	151,551	225,536	54,668	58,657	69,421	146,729	210,209	294,957
July	92,535	152,001	234,822	46,145	58,326	66,873	138,680	210,327	301,695
Aug.	90,769	158,604	240,816	49,423	61,168	61,469	140,192	219,772	302,285
Sept.	84,362	169,927	254,324	58,758	60,923	62,420	143,120	230,851	316,744
Oct.	88,483	185,470	273,456	59,180	51,122	68,427	147,663	236,593	341,883
Nov.	92,219	189,925	292,498	62,358	52,538	77,443	154,577	242,463	369,936
Dec.	118,609	200,998	.....	62,388	56,035	.....	180,997	257,033	.....

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1929	1930	1931	At end of	1929	1930	1931
Jan.	25,191	60,434	81,093	July	30,080	81,048	81,317
Feb.	25,554	64,557	82,265	Aug.	35,605	80,931	81,560
Mar.	28,214	68,923	84,736	Sept.	42,188	83,329	79,692
Apr.	31,368	74,676	86,982	Oct.	47,803	77,647	76,778
May	31,290	77,312	86,726	Nov.	52,454	76,887	
June	31,025	80,260	83,071	Dec.	54,304	78,013	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1931					
September	81,011	81,011	81,048	80,055	
October	79,246	78,735	78,704	78,465	76,698
November	76,323	75,256	74,322	73,207	
December	72,904	72,785	71,400	70,043	
1932					
January	69,504				

Stocks in Liverpool

1931					
September	55,239	54,791	55,024	54,779	
October	54,677	55,518	55,276	55,797	56,816
November	56,284	55,933	56,339	56,366	
December	56,901	57,157	57,116	56,908	
1932					
January	57,718				

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1929	1930	1931	End of	1929	1930	1931
Jan.	29,617	39,727	49,802	July	33,859	45,459	51,203
Feb.	32,373	44,371	49,288	Aug.	30,834	48,132	48,971
Mar.	29,437	45,657	49,590	Sept.	32,138	44,015	47,025
Apr.	26,474	48,473	45,868	Oct.	33,770	39,930	52,132
May	30,764	44,715	44,278	Nov.	30,963	41,674	46,497
June	30,403	42,451	47,517	Dec.	35,548	45,963	

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
Dec.	40,919	25,980	2,569	5,189	5,132
1931:					
Jan.	41,620	24,500	3,168		5,124
Feb.	43,027	24,580	3,326		5,404
Mar.	40,227	25,800	3,622	3,857	4,843
Apr.	37,103	18,500	3,659		5,137
May	37,171	17,770	3,380		4,896
June	38,748	18,440	3,219	3,518	4,894
July	40,377	19,960	3,111		4,548
Aug.	40,606	18,880	3,204		4,571
Sept.	37,114	16,200	3,293	2,763	4,972
Oct.	35,381	17,800	3,100		5,465
Nov.	39,193	18,000			5,506

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.8	1929	24,141,502	80.3
1926	24,199,524	78.8	1930	17,364,096	80.1
1931			1931		
January	681,301	67.9	July	812,642	74.0
February	1,010,774	73.9	August	924,236	80.8
March	1,425,336	81.4	September	504,879	70.4
April	1,717,652	79.9	October	281,749	62.7
May	1,508,349	83.7	November	638,138	78.0
June	1,084,707	77.8	December		

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	45,259	51,633	60,845	61,237	64,439	77,944	68,726	50,965
Shipments	45,204	50,120	59,262	59,002	64,059	74,296	69,395	53,638
Inventory[2]	5,772	7,427	8,142	10,456	10,264	13,624	11,838	9,003

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,301	4,485	3,675	6,211	4,406	3,744	12,855	11,924	8,957
Feb.	6,479	4,555	3,985	4,951	4,195	3,402	14,525	11,410	9,536
Mar.	7,049	4,863	4,663	6,289	4,717	4,122	15,329	12,513	10,014
Apr.	7,391	5,648	4,944	6,838	5,089	4,932	15,870	13,076	10,031
May	7,636	5,717	5,679	6,735	5,216	5,415	16,733	13,432	10,312
June	6,847	5,122	5,672	6,800	5,294	5,572	16,497	13,277	10,447
July	6,320	3,991	4,926	7,364	5,447	5,462	15,034	11,812	9,919
Aug.	5,693	4,166	3,906	7,354	5,175	4,960	13,337	10,848	8,896
Sept.	4,460	3,365	3,172	5,623	4,405	3,932	12,070	9,812	8,158
Oct.	4,611	3,582	2,974	4,649	3,499	2,852	12,042	9,803	8,300
Nov.	3,378	2,654		3,355	2,834		12,127	9,595	
Dec.	3,057	2,814		3,237	3,361		11,838	9,003	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	60,116	70,706	82,614	76,618	70,823	80,180	68,829	52,420
Shipments	59,072	68,106	81,004	71,591	72,896	77,127	70,592	54,938
Inventory[2]	8,425	11,052	11,313	16,200	13,692	16,117	12,807	9,999

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,109	4,607	3,623	6,789	4,857	4,062	14,424	12,704	9,439
Feb.	6,346	4,634	3,916	4,948	4,337	3,400	15,936	13,036	9,921
Mar.	7,000	4,941	4,450	6,317	4,727	3,789	16,641	13,179	10,475
Apr.	7,157	5,510	4,617	6,716	4,848	4,636	17,000	13,784	10,413
May	7,181	5,535	5,413	6,598	5,074	5,281	17,745	13,852	10,549
June	6,542	4,950	5,358	6,515	5,265	5,397	17,294	13,612	10,504
July	5,793	3,939	4,955	7,605	5,855	5,831	15,311	11,657	9,589
Aug.	5,481	4,796	4,435	7,672	5,762	5,301	13,072	10,737	8,774
Sept.	5,190	3,817	3,449	5,859	4,541	4,150	12,585	10,065	8,095
Oct.	5,000	3,951	3,077	4,689	3,472	2,813	12,802	10,517	8,321
Nov.	3,544	2,680		3,480	2,788		12,845	10,313	
Dec.	3,484	3,060		3,404	3,412		12,807	9,999	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,002	164,483	40,609	4,503,891
1927	3,393,887	2,923,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930							
Jan.	273,089	235,099	37,990	10,388	8,856	1,532	283,477
Feb.	346,940	297,483	49,457	15,548	13,021	2,527	362,488
March	401,378	336,178	64,200	20,730	17,165	3,565	422,108
April	442,630	375,171	67,459	24,257	20,872	3,385	466,887
May	417,154	362,784	54,370	24,672	21,251	3,421	441,826
June	335,475	289,704	45,771	15,090	12,194	2,896	350,565
July	262,363	222,700	39,663	10,188	8,556	1,632	272,551
Aug.	224,368	187,288	35,758	9,792	6,946	2,846	234,160
Sept.	216,877	175,720	41,157	7,957	5,623	2,334	224,834
Oct.	150,044	112,800	37,244	4,541	3,206	1,335	154,585
Nov.	135,752	102,957	32,795	5,407	3,527	1,880	141,159
Dec.	155,701	124,173	31,528	5,622	4,225	1,397	161,323
Total	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931							
Jan.	171,848	138,317	33,531	6,496	4,552	1,944	178,344
Feb.	219,940	180,419	39,521	9,871	7,529	2,342	229,811
Mar.	276,405	231,244	45,161	12,993	10,483	2,510	289,398
Apr.	336,939	285,693	50,015	17,159	14,043	3,116	354,098
May	317,163	269,420	45,695	12,738	10,621	2,117	329,901
June	250,640	208,158	41,304	6,835	5,583	1,252	257,475
July	218,490	183,107	35,854	4,220	3,151	1,069	222,710
Aug.	187,197	155,425	31,772	4,544	3,426	1,118	191,741
Sept.	140,566	109,228	31,338	2,646	2,108	538	143,212
Oct.	80,142	58,415	21,727	1,440	761	679	81,582
Nov.	68,867	49,184	19,683	1,247	812	435	70,114
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[5]							
	Gross Exports	Gross Exports Minus Imports	Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,966
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,866
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,528
1926	391,328	151,248	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1929:															
Dec.	46,147	15,018	31,129	8,683	900	930	672	320	5,189	8,279	11,102	966	1,674	443	70,287
1930:															
Jan.	52,535	11,773	40,762	7,741	1,560	791	642	386	5,709	7,831	8,928	856	1,837	585	77,628
Feb.	48,947	12,960	35,987	8,055	1,245	847	642	469	6,900	7,191	11,414	944	1,787	480	75,961
Mar.	47,320	12,236	34,084	6,617	1,129	976	642	391	5,796	6,612	11,214	643	1,674	536	70,314
Apr.	43,803	14,627	29,176	4,444	856	1,026	502	366	4,802	6,326	12,724	433	1,201	630	62,486
May	49,016	13,253	35,763	5,968	975	917	502	350	6,352	6,661	12,041	753	1,383	555	72,220
June	36,607	12,120	24,487	4,577	778	1,040	201	392	4,728	4,776	9,512	425	974	551	52,441
July	41,347	12,759	28,588	3,868	792	1,087	600	327	6,022	5,891	9,770	648	810	418	58,821
Aug.	47,802	10,804	37,498	7,077	600	740	600	335	5,892	7,197	9,520	394	809	382	71,134
Sept.	48,529	8,087	40,442	7,966	343	680	600	289	5,960	6,358	7,302	527	1,093	474	72,034
Oct.	47,770	7,312	40,458	7,681	591	598	650	300	5,916	6,956	6,352	667	669	449	71,287
Nov.	41,281	7,774	33,507	6,042	864	631	600*	311	5,334	6,401	8,001	654	658	238	63,241
Dec.	42,086	9,671	32,415	6,934	1,049	976	600*	335	6,254	7,196	8,476	721	1,365	353	66,674
1931:															
Jan.	41,579	11,029	30,550	7,039	1,315	770	542	424	5,923	7,348	10,328	1,218	994	295	66,746
Feb.	41,951	9,672	32,279	6,365	1,041	945	542	409	4,869	7,206	9,001	1,018	1,271	217	65,163
Mar.	48,589	12,009	36,580	5,881	1,209	930	542	536	5,434	7,104	11,258	1,233	1,338	430	72,477
Apr.	43,353	9,977	33,376	4,333	641	788	455	340	6,473	6,063	8,759	327	629	333	62,517
May	44,281	10,479	33,802	4,534	622	869	455	413	7,372	6,799	10,955	702	1,110	382	68,015
June	39,505	12,115	27,390	5,246	1,086	1,138	455	337	5,856	6,697	11,381	938	621	351	61,496
July	43,658	11,995	31,663	4,212	715	801	500*	316	6,671	7,510	10,711	841	1,565	186	65,691
Aug.	42,832	9,063	33,769	3,764	406	692	500*	210	6,397	7,044	8,641	983	856	241	63,503
Sept.	44,336	8,369	35,967	4,202	169	701	500*	218	5,578	7,358	8,389	922	745	170	64,919
Oct.	45,911	9,955	35,956	5,105	286	872	500*	338	8,086	7,882	9,547	844	1,284	150	70,850
Nov.	48,012	9,529	38,483	4,858		830	500*	390	7,351	8,174	7,981	944	872	150	
Dec.															

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,399
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,013
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	632,808
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,015
1930	458,036	119,437	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	821,813
1929:															
Nov.	41,097	13,141	3,082	3,776	2,709	3,221	1,275	1,226	1,453	361	253	595	62	313	72,564
Dec.	40,588	12,434	4,274	2,921	2,114	2,251	1,198	1,200	726	741	52	677	90	443	69,709
1930:															
Jan.	44,911	11,106	4,207	3,862	2,842	2,805	910	826	332	612	209	552	200*	577	73,949
Feb.	40,792	10,293	4,482	3,697	2,250	1,386	1,385	2,705	457	1,143	188	815	200*	289	69,581
Mar.	42,216	12,346	4,354	4,289	3,776	2,663	1,033	1,153	975	678	358	322	200*	263	74,676
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	929	673	1,431	158	461	200*	255	76,790
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,645	64	1,250	230	274	200*	282	65,620
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,574	67	691	343	507	200*	282	65,620
July	32,785	7,650	3,311	3,449	3,347	1,206	587	567	84	939	172	756	200*	342	55,395
Aug.	34,513	8,369	3,953	3,515	2,108	2,170	886	149	265	888	87	747	200*	450	58,256
Sept.	34,373	16,015	5,285	4,089	1,578	2,606	1,279	1,373	414	824	221	817	200*	411	69,481
Oct.	44,385	9,095	7,403	3,747	1,942	3,951	2,460	2,782	609	769	439	1,132	200*	351	79,264
Nov.	28,437	—250	13,662	3,074	2,128	4,003	2,510	2,140	464	596	364	1,180	200*	343	58,851
Dec.	35,202	12,249	7,149	3,105	1,347	4,104	2,815	544	950	814	205	647	200*	673	70,004
1931:															
Jan.	34,892	9,730	5,954	3,847	1,709	2,861	1,036	1,775	601	986	348	464	240	635	65,015
Feb.	32,575	12,226	4,510	3,374	1,927	3,264	1,393	1,022	495	785	157	475	201	366	62,770
Mar.	37,988	12,335	4,386	3,545	3,012	2,323	418	2,372	435	862	346	400	392	507	69,321
Apr.	43,036	9,440	4,346	3,054	2,070	3,478	528	1,450	457	515	333	495	208	324	69,734
May	33,348	7,212	2,880	3,231	2,748	3,755	1,023	1,034	884	1,153	86	495	180	711	58,735
June	44,190	5,636	4,002	3,504	2,112	2,988	1,462	3,279	1,112	1,058	272	577	207	607	71,006
July	44,052	5,366	3,301	3,226	2,592	3,065	809	3,141	627	1,507	41	429	145	1,074	69,375
Aug.	36,709	5,030	3,393	2,889	2,304	3,780	812	3,137	283	955	—57	321	160	413	60,129
Sept.	37,570	5,468	4,420	4,227	1,535	5,556	693	2,335	269	1,015	191	571	99	499	64,448
Oct.	39,871	5,775	3,909	3,220	1,567	3,980	571	4,076	765		185	710	193	695	
Nov.	43,700												297		

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1930	42,681,000	178,059,000	29,514,000	58,465,000
1930:				
October	5,209,000	16,460,000	3,056,000	4,186,000
November	2,822,000	11,083,000	1,426,000	3,400,000
December	1,909,000	13,101,000	3,021,000	3,338,000
1931:				
January	2,206,000	12,973,000	2,481,000	3,599,000
February	2,184,000	13,156,000	2,724,000	3,711,000
March	2,769,000	14,661,000	2,292,000	4,412,000
April	3,381,000	15,408,000	2,692,000	4,617,000
May	3,050,000	15,474,000	2,885,000	4,231,000
June	3,212,000	17,093,000	3,177,000	3,879,000
July	3,337,000	15,361,000	2,864,000	3,706,000
August	3,787,000	16,293,000	2,933,000	3,356,000
September	4,692,000	15,827,000	2,880,000	3,015,000

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,480	760,690	727	937,038	8,322	2,213,964	—	—
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	—	—
1921	58	26,945	814	1,077,859	1,745	351,893	—	—
1922	127	57,040	812	978,765	2,335	403,812	—	—
1923	1,155	542,227	700	898,524	4,565	853,308	—	—
1924	1,856	536,392	464	568,458	6,165	1,237,100	2,157	864,059
1925	8,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,563,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	592	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,208	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1930:								
Dec.	—	—	90	66,198	429	116,644	70	20,481
1931:								
Jan.	—	—	46	31,870	355	58,897	291	70,708
Feb.	—	—	17	13,801	511	114,100	369	89,470
Mar.	—	—	66	23,562	625	127,803	395	75,285
Apr.	—	—	219	69,284	676	140,309	372	73,867
May	—	—	120	44,025	205	36,086	318	82,202
June	—	—	245	79,786	681	123,616	706	129,496
July	—	—	67	20,777	331	64,493	583	104,868
Aug.	—	—	73	30,207	652	100,536	364	60,358
Sept.	—	—	126	35,174	407	65,232	439	72,443
Oct.	—	—	100	13,846	415	75,219	267	43,238
Nov.	—	—	36	11,539	276	50,062	265	40,649

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

	Consumption					Consumption			
Year	Production	Tons	% to Crude	Stocks*	Year	Production	Tons	% to Crude	Stocks*
1921	36,725	41,351	24.1	.....	1926	180,532	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1925	132,930	127,105	35.6	13,208	1930	157,967	153,497	40.8	22,000
1929:									
Jan.	18,685	21,068	49.1	24,394	July	18,287	20,236	48.7	19,679
Feb.	19,094	19,829	47.7	23,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.	18,865	18,744	53.8	25,117
May	20,385	23,176	47.1	19,479	Nov.	14,363	15,350	55.4	26,080
June	18,416	18,141	42.0	17,980	Dec.	13,429	11,531	49.0	27,464
1930:									
Jan.	15,010	17,454	47.6	24,241	July	12,322	12,384	42.8	23,873
Feb.	15,846	14,559	44.5	24,248	Aug.	12,047	10,985	35.9	22,980
Mar.	17,400	15,241	42.2	24,415	Sept.	11,433	10,480	41.4	21,996
Apr.	17,828	16,904	42.0	24,587	Oct.	12,349	10,724	39.8	21,145
May	17,812	17,052	42.7	23,356	Nov.	10,763	8,816	37.5	24,007
June	15,714	14,063	40.8	24,449	Dec.	10,073	8,449	39.3	24,008
1931:									
Jan.	10,349	10,728	37.6	22,429	July	11,393	11,447	35.8	17,720
Feb.	10,871	10,800	37.5	18,878	Aug.	10,110	9,972	36.2	17,165
Mar.	12,938	12,524	38.2	18,275	Sept.	9,629	8,932	37.6	17,226
Apr.	13,267	11,745	35.0	18,356	Oct.	9,482	8,126	36.6	17,741
May	13,478	13,103	34.6	18,089	Nov.	7,892	7,492	32.6	17,662
June	14,066	13,045	34.4	18,505	Dec.	.....	.....	.....	.....

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 2,540 tons in 1927, 9,577 tons in 1928, and 12,869 tons in 1929.
(Rubber Manufacturers' Association figures raised to 100%)

REVIEW DESK

Books, New Publications, Catalogues, Etc.

MEN WORKING: A STORY OF THE GOODYEAR TIRE & RUBBER COMPANY. By Norman Beasley. Published by Harper & Brothers, 49 East 33rd Street, New York City. 1931. 316 pp. $3.

A story that is familiar to rubber men has been interestingly recounted for the general public by a writer who has previously distinguished himself by similar industrial histories. Mr. Beasley presents a humanized biography of "men working" to build up from debts, patent litigations and disappointments, a great industrial corporation, giving particular emphasis to the leadership of Paul Weeks Litchfield. It is, however, a selection of incidents rather than a complete portrayal of the company's growth. No mention is made of the tire price battles, of the 1926-1927 litigation that held national attention in the financial world, or of Goodyear's work in the World War. One-quarter of the Goodyear story is devoted to lighter-than-air development, although the catastrophes that attended the early experiments are omitted. The company's dealings with its employes comprise a large portion of the volume. Popular in style, with imaginary dialogue carrying the narrative along, the book at least makes interesting reading and should be informative for those not acquainted with the history of the rubber industry.

MORE ABOUT CERTIFIED BLACK. Published by Godfrey L. Cabot, Inc., 940 Old South Building, Boston, Mass. 1931. 24 pp. For free distribution.

Work done by Godfrey L. Cabot laboratories in the past two years on the improvement of quality control is described in this attractive and interesting pamphlet. Processing properties, dispersion, moisture content, accelerator adsorption and other characteristics are treated in detail.

INSTRUCTIONS FOR REMOVAL AND APPLICATION OF TIRES ON DROP CENTER RIMS. Published by the Rubber Manufacturers Association, Inc., 250 West 57th Street, New York City. 1931. 8 pp. For free distribution.

This pictorial instruction booklet is intended to simplify the process of removing or applying tires on drop center rims. Twelve illustrations of the steps to be taken are accompanied by full explanations.

R & H NON-FLAMMABLE SOLVENTS. Published by Roessler & Hasslacher Chemical Company, 350 Fifth Avenue, New York City. 1931. 6 pp. For free distribution.

Information on the important features, physical properties, and major uses and applications of the company's non-flammable solvents is contained in this folder. It is intended to serve as a ready source of information and for that purpose has been prepared in summarized form.

A. S. T. M. TENTATIVE STANDARDS, 1931. Published by the American Society for Testing Materials, 1315 Spruce Street, Philadelphia, Pa. 1931. 1,008 pp. $7 (paper); $8 (cloth).

The 1931 edition of A. S. T. M. Tentative Standards contains 180 tentative specifications, methods of test, definitions of terms and recommended practices in effect at the time of publication, together with tentative revisions in 50 existing A. S. T. M. standards. Thirty of the tentative standards relate to rubber products, insulating materials and textile materials. The volume contains a comprehensive subject index and a table of contents which lists, under the various materials covered, the respective standards.

PRINCIPLES OF PATENT LAW FOR THE CHEMICAL AND METALLURGICAL INDUSTRIES. By Anthony William Deller. Published by the Chemical Company, 419 Fourth Avenue, New York City. 1931. 486 pp. $6.

The rubber industry, like many other fields of industrial activity, has felt the effect of the multiplicity of inventions in the realm of chemistry in recent years. All of the larger companies have been making their own researches, and the problem of patent protection has been frequently encountered. A volume of this type should be of great value in preventing costly mistakes as regards the protection of the results of such development work. Dr. Deller presents a great variety of information in an interesting way and offers as an appendix some statistics of foreign countries, data on foreign patents and some valuable memoranda on minerals and metals.

B

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The RUBBER AGE

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Health Hazards

THE safeguarding of the health of workers in rubber manufacturing plants has been one of the major problems in the industry. The problem has been so effectively met that today the rate of industrial poisonings and illnesses incident to labor in rubber factories is at such a low point that the industry as a whole can be well congratulated. The rubber section of the National Safety Council has been indefatigable in its efforts to reduce health hazards in rubber manufacturing processes. Two papers dealing with subjects pertinent to health hazards in rubber plants, delivered before the recent Safety Council Congress, are included as features in this issue of THE RUBBER AGE.